

THE AUTOMOBILE

All the Comforts of Home en Tour



WHEN the summer breezes begin to blow and the trees grow green, the automobilist starts to study road maps and to plan long tours through delightful country which he may or may not have visited before. A month ago he finished the overhauling of his car, and now nothing remains but to settle upon where to go, and what summer touring apparel, accessories and other paraphernalia to carry, so that all the comforts of home, so to speak, may be enjoyed while on the road.

He sniffs the first air of summer, consults still more road maps, talks over several possible tours with his family, and finally decides that he will either tour through New England, through the Adirondack country of New York, through the wondrous regions along the Atlantic coast, through the Western broadness and the National Parks, or a hundred and one other delightful parts of this great continent, which, aided by the good roads commissions, are waiting with open arms for the visits of one and all of the great army of automobile owners.

Look into the library of a home in Philadelphia, for instance, one of these near-summer evenings. The family is deeply interested in road maps and guides to the exclusion of all other literature. "Wife," says the biggest enthusiast of them all, who is also the head of the family, "let's take a trip through New England again. We can go up through New York to New England and return along the coast." Then he looks down at the maps before him. "Let me see; we can start from here, go up through the Delaware Water Gap, through the eastern end of

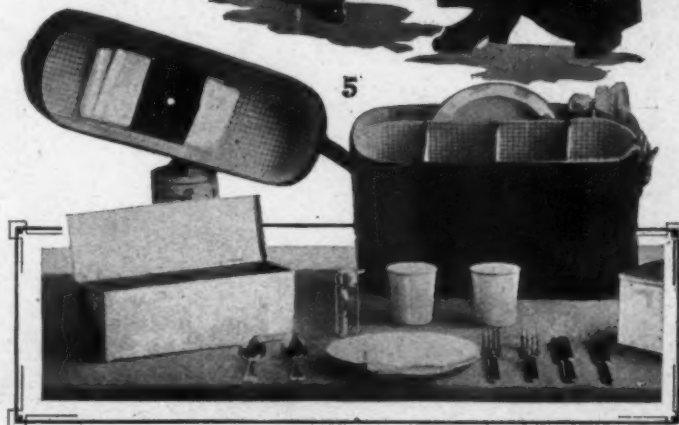
1. An automobile dressing case which leaves nothing to be desired

2. Three-quarter semi-heavy motoring coat for cool days

3. An outfit for madam combining serviceability and attractiveness.

4. One of the newer outfits. A deep-sleeve raglan coat and hat of the same material

5. Motor lunch kit for two persons which is very compact



New York to Albany, perhaps along the banks of the Hudson, on to Boston and up."

"Don't you think the trip through the Great Lakes district would be better," says the only daughter, "because we have already been over the other trip, and a tour around the lakes would be something new for us. We could first run to Buffalo, then on to Cleveland, to Detroit, across Michigan to Chicago, to Milwaukee, and up through Wisconsin to Duluth. From Duluth we could take a boat back to Buffalo, if we wanted to."

This outlined tour seems very inviting, and after much deliberation, mother and father finally decide to abide by daughter's choice. All are relieved now that the weighty matter is settled.

This little playlet is being enacted with slight variations in many homes just now. Road maps, touring guides and hotel literature lie around promiscuously on reading room tables, chairs and desk. The fever to be up and doing has seized hold of whole families. Lists are made of the articles needed for the trips, supply stores are visited, dealers in automobile apparel and conveniences for the car are appealed to; in fact, after the itinerary of the trip is fully decided upon, the next consideration is the equipment. The concentration of several members of the family on this one matter should bring results, and it does. Before long each has an outfit which is calculated to give protection to the clothes and added comfort while on the road.

In purchasing touring apparel, etc., it is best to lose no time in entering the automobile store. Therefore, on to the shop!

1. Raglan coat with shawl collar for cold and damp weather
2. A complete chauffeur's livery of accepted type
3. A very desirable dust coat, made roomy through the medium of side plaits
4. For the hot days this duster is the thing. The material is very thin and the coat can be buttoned snugly around the chin to the exclusion of all dirt and dust
5. A chauffeur's coat for chilly days which has good lines and is made long and full



At the automobile apparel shops, many surprises are in store for the motorist who has not kept track of the new things right along. If he has just bought his first car and has never paid much attention to such shops, or if he is an automobilist of several years' standing and has not been in one for a year or more, he has much to see. If he has expected to find only the ordinary types of goggles, caps, gloves, coats and other garments he will have a large awakening. "Why, I had no idea there were such complete shops of the kind anywhere," he will exclaim.

Never before has there been such an array of novelties—novelties worth while—as is this season put before the intending traveler, who has in mind free and easy touring enjoyment during the coming none-too-long touring season. Every whim and want of one who drives or rides in a car has been anticipated and provided for in more ways than one by the clever designers of automobile apparel and conveniences for motoring.

No creator of fashion has devoted more time and attention to his product than has the manufacturer of automobile goods. Every device, from the most necessary down to the minutest in the car's equipment, has been carefully made, tested out and perfected, so that the automobilist of today is one of the best cared-for of individuals.

In the supply store automobile dust-coats of the finest and lightest materials, and the last word in automobile hats, caps, veils, gloves and goggles are laid before you. Toilet cases, auto trunks, lunch baskets and boxes, tire trunks, suitcase trunks, cushions and countless other things are in such endless variety that you are all at sea. You gaze at the articles around you in an awed sort of a way and wonder where they all came from. Finally you

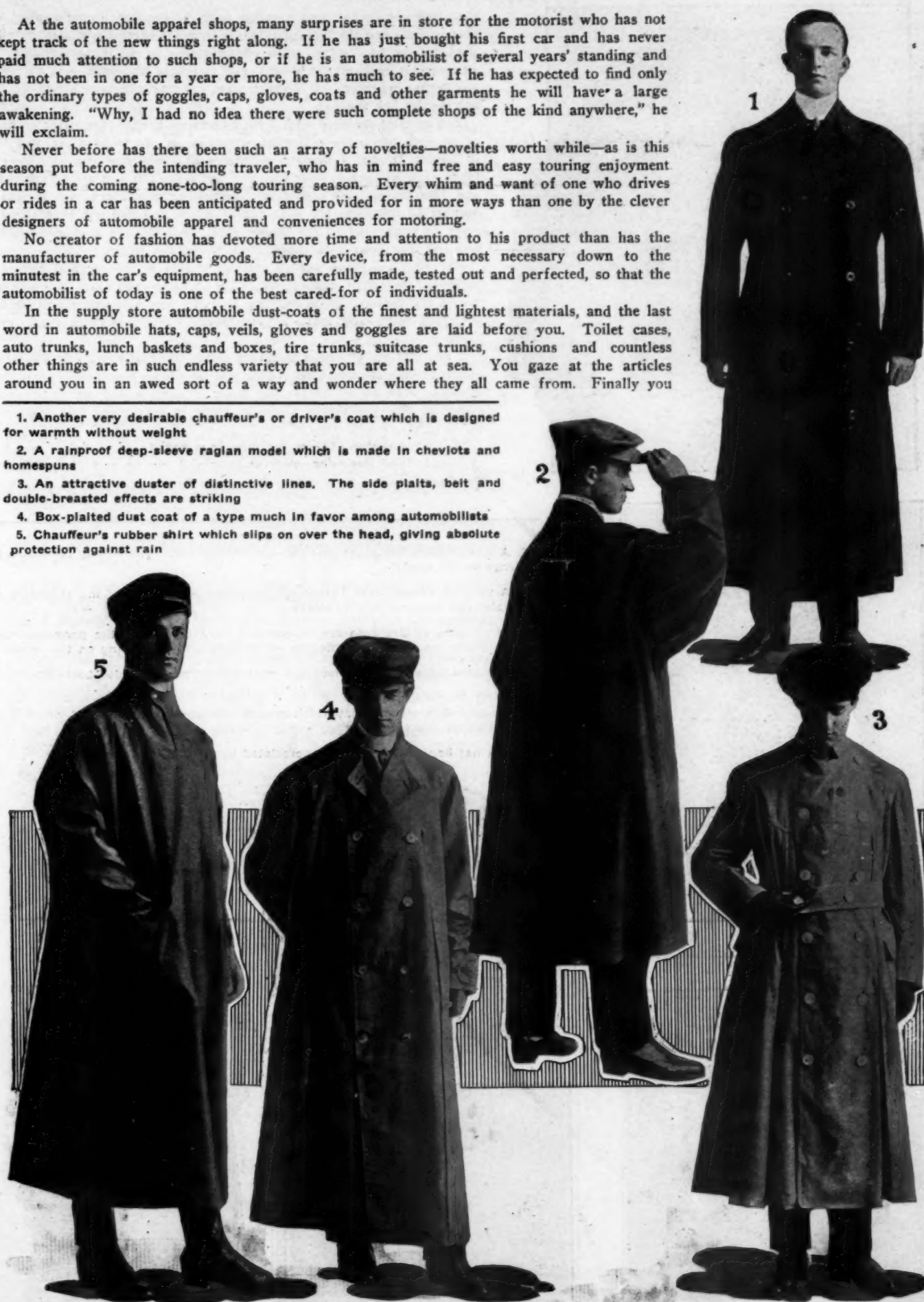
1. Another very desirable chauffeur's or driver's coat which is designed for warmth without weight

2. A rainproof deep-sleeve raglan model which is made in chevrons and homespun

3. An attractive duster of distinctive lines. The side plaits, belt and double-breasted effects are striking

4. Box-plaited dust coat of a type much in favor among automobilists

5. Chauffeur's rubber shirt which slips on over the head, giving absolute protection against rain





gasp that you do not wish to equip your car for light housekeeping, but that you are just thinking of taking a tour for several weeks or months. And, in due time, after much consideration of all the arguments for and against each article shown, you purchase an outfit, and go away wondering whether you bought your car for the accessories or the accessories for the car.

You entered the shop with a list of articles needed, and after an hour or so with the polite salesman, who has an eye to business, you left it, having bought a number of things that you had not listed. The temptation was put in your way and you fell. But you are only human, and, like anyone else placed in the same circumstances, you bought a number of comforts for your car of which you had not even thought prior to your visit to the supply shop. All this, of course, provided you felt that your pocketbook could stand the strain.

But after you have put all your purchases in the car and have experienced the added pleasure which they give to your tours, you will not regret the outlay. Your clothing novelties and equipment will be appreciated more and more as you unravel one American road after another.

When you are buying a motoring outfit, the first thing you ask when you enter the supply store is that you be shown automobile coats and dusters. And almost before you know it there is laid out an array so extensive that you are at a loss to settle in your mind just what you do want.

"We have motor dusters for men in a variety of models," says the salesman, "and the prices start at \$1.25 and run up as high as \$35 for the finest quality of pongees, shantung silks, tussahs and so on. You



1. A combination hemp braided hat and chiffon veil. The veil is permanently fastened to the hood

2. A very convenient robe holder which adjusts either around the shoulders or the waist and has easy sliding clasps

3. Wind cuffs of this type are in evidence on a number of the garments now made. There are two snap fasteners which hold without binding on the wrists

4. Imported goggles which have eye shades that can be folded back when not needed

5. A convertible steamer hat which may be tied under the chin, and which may be worn either end front

6. Silk hat bag which is much appreciated by the lady automobilist



will make no mistake in getting one of them. They are made for service, and at the same time they have distinctive style of their own."

Linens, mohairs, combination silks and linens, all are to be had in a variety of models to suit many tastes and pocket-books. For \$3.50 a surprisingly good dust-coat may be bought in either gray, light brown or white. But if such a model does not suit, there are others at almost any price you may care to pay. Plaits are very noticeable in the newer and better types, as some of the illustrations on pages 1205 and 1209 show. These make the garments very roomy and at the same time lend to them a trim appearance which is hardly to be expected in garments designed primarily for protection against dust and dirt.

One very distinctive model for men has plaits running from the shoulders down, making it very full and comfortable when seated. There is a belt at the waist, which, although not necessary to the use of the coat, lends a certain air of style which it would not otherwise carry. There are six buttons so that the suit underneath may be completely covered up and protected. The supply dealer asks you \$12.50 for this model in repp, while the same thing in mixed silk and linen costs \$20. When it comes in silk wholly, the price mounts up to \$25 or \$35, depending on the quality.

A very good quality gray or tan silk and linen dust coat is shown on page 1204. This style is particularly adaptable to summer wear when no garment which has any appreciable warmth is to be tolerated. The material is so thin that when held up to the light one can almost see through it. This coat costs from \$10 to \$12.50, and it comes in all desirable colors, such as gray, tan and white.

Perhaps one of the best models for all conditions is the tan or gray coat which has side plaits extending from the waist down, thus making



1. Another veil and hat combination. The hat is of straw and the veil is dust-proof and washable

2. The Jeanette hood which is designed to fit over any hat, and to protect the neck and sides of the face at the same time

3. A French novelty in air cushions. The device is self-inflating and very compact when folded

4. Another view of the goggles shown on opposite page. The eye-shades are here shown in extended position

5. Novel cap which may be adjusted to fit any head by means of the cloth strap and buckle in front

6. A cloth coat for the lady motorist, which comes in English chevrons





it very roomy. The motor apparel shop will show you this style in all materials, and will also demonstrate its merits to you. The collar is arranged to button up snugly around the neck to the exclusion of all dust or dirt. There are five buttons, the lowest of which has been placed opposite to where the plaits begin. It appears in mohairs, linens and silks at prices ranging from \$12.50 to \$30.

A semi-heavy coat should be included in the outfit for the cool evenings when the air is damp or foggy. A coat which fills this want is the shawl-collar raglan in three-quarter length. This commands a price ranging from \$32.50 to \$45. One other rather stylish model is the deep-sleeve raglan which is made in English and Scotch homespun and cheviots. This type is illustrated on page 1207, Fig. 2. It is also of three-quarter length and the material is rainproof—a particularly desirable feature should a cold and rainy day be encountered. This raglan model sells at prices ranging from \$32.50 to \$50.

Another desirable three-quarter semi-heavy coat which is adaptable for touring has a plaited and belted back and is made in blue cheviots, diagonal materials and fancy colorings to meet the whims of the ultrafashionable man who at the same time wishes to be comfortable when he is in the car. Prices from \$35 to \$42.50 are asked for such coats, one model of which is shown on page 1203, Fig. 2.

The ordinary types of slip-ons and raincoats are always in favor and their many uses are responsible for this popularity. Amounts as low as \$6 will purchase them, while perhaps the most expensive type costs \$45. They come in black, olive and tan rubber; in mackintosh cloth of single and double texture in tan, olive, black and blue; in gabardines in a number of styles of imported and domestic cloths and in roseberry designs.

While the salesman is showing all these desirables to the masculine members of the prospective touring party, the saleslady is busy with the feminine members. And if you thought

1. A very attractive motoring coat of silk. It is trimmed with Irish lace
2. This coat is reversible. The fancy hood is also very attractive
3. A mannish-cut ulster which is made of English and Scotch cheviots.
4. Rubberized duster and raincoat. The most serviceable of them all
5. A three-quarter length sporting coat of slightly masculine appearance



there was variety in men's garments, then you will be at a loss to express yourself as to the almost endless assortment of coats for all touring conditions which are put forth for the approval of the feminine automobilist.

The first thing to be considered is generally the dust-coat. In one design this important component of the outfit appears as a very neat model of white natural linen with collar and cuff of silk in any desired color. This coat is shown in Fig. 3 on page 1203, and it is seen that, when desired, it can be buttoned up snugly around the neck. Depending on the material, this model costs from \$16.50 to \$20.

On this page, Fig. 5, a very handsome tussah silk coat for the lady tourist is seen. This model has only three buttons and is of the double-breasted type, the inner buttons passing through the cloth. This creation has velvet-trimmed collar and cuffs. But the price makes madam hold her breath. The saleslady says it is \$75.

A very elaborate silk coat bearing a \$35 price tag appears on page 1208, Fig. 1. It is trimmed with Irish lace and is washable—truly a feature to be appreciated. The lapels are long and the sleeves are prettily trimmed with small buttons in addition to the lace. One would almost imagine that madam was attired for the opera were he far enough away from this very attractive model not to be able to distinguish the material of which it is made.

Further survey of the ladies' coats reveals a very distinctive model, which to quote the saleslady, "is an exceedingly different creation," that comes in Russian linen, silk, gloria or repps. The model shown on page 1206, Fig. 1, is trimmed with black silk, but the same style may be had without the trimming, if desired. The prices range from \$20 to \$35, and it is doubtful if a more serviceable and, at the same time, attractive garment could be found. The diagonally-cut front and the ten-button effect are features that must appeal to many a

1. This model has lines of its own. The diagonal-cut front, button effect and trimmings make it very attractive
2. A raglan-sleeve duster which comes in both linen and pongee
3. A box-plaited duster found in mohairs and silks. Fine for summer touring wear
4. When the air is biting, damp or foggy, this coat is most acceptable
5. Double-breasted tussah-silk coat with velvet-trimmed collar and cuffs

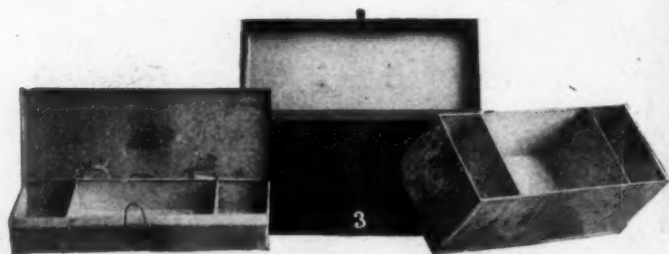




New folding leather case for attachment to the robe rail



Comfortable goggles and neat veil arrangement for touring enjoyment



The touring refrigerator which has two galvanized trays for ice and eatables

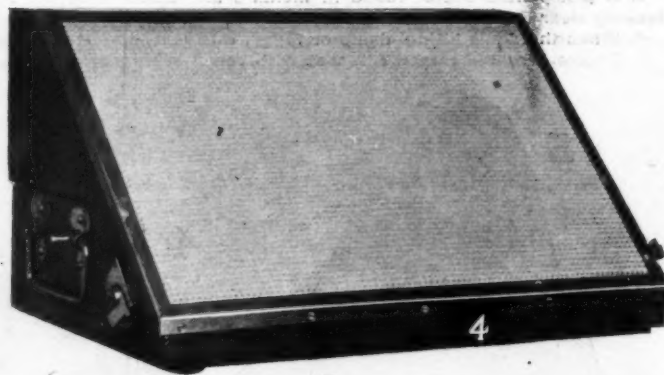
lady whose tastes combine the practical with the ornamental.

The combined rain coat and duster of light weight is not to be overlooked by any means. This garment has come to be regarded as nearly standard for motoring, and, with a cost as low as \$7.50 and up to \$25, it makes an unusual appeal. The model illustrated on pages 1205 and 1206 is a representative type. There are raglan sleeves and five buttons to completely exclude water and dust. Wind-shield flaps on the cuffs find much favor.

As to heavier coats, the English tweeds and Scotch home-spuns are very popular, and, in appearance, at least, leave nothing to be desired. Fig. 4, page 1205, illustrates a model having a belted back and a single long plait running from the shoulder yoke down. The price varies from \$32.50 to \$55. The three-quarter length English cheviot coat on page 1209, Fig. 6, has very much the same lines as the model just mentioned, although the length is less. Its cost is between the same limits.

A rather novel-appearing, mannish-cut ulster which comes in English and Scotch cheviots is shown in Fig. 3, page 1206. This style is single-breasted, buttons all the way down the front with seven large buttons and has large patch pockets of rather unusual shape. Like the two models already referred to, this type bears price tags varying from \$32.50 to \$55.

Still more mannish in appearance—but very comfortable for all that—is the three-quarter length sporting coat in Fig. 5, page 1206. It is a single-breasted, four-button model and might be held to be a man's garment at first glance. But closer inspection



The combined foot rest and lunch trunk as it appears when closed

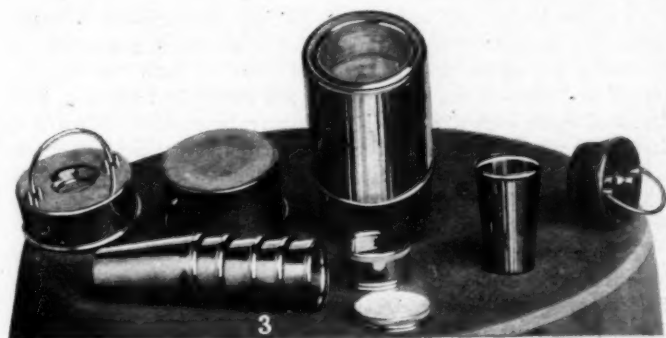


A lunch hamper which is fully equipped for six persons

tion reveals the fact that it is much too narrow in the shoulders for man's wear, and that there is a slight in-curve at the waist. Its cost runs from \$30 to \$45.

But the latest and most distinctive model of them all is the checked affair shown on page 1203, Fig. 4. This is a deep-sleeve raglan design which comes in rather striking colors of English and Scotch cheviots at \$32.50 to \$55. It is rainproofed and made for service as well as appearance. There are four buttons, and it has somewhat the advantage of the other models in length. The roominess is clearly shown, this feature especially contrasting with the present narrow skirts, according to the saleslady. There are wide cuffs and diagonal pockets to lend further distinctive touches.

While coats and dusters receive a great deal of attention from the supply shop, caps for men, and the very latest styles of automobile bonnets and hats for women come in for their share of consideration. Men's caps are especially designed to stay on the head and to be comfortable at the same time. For windy and chilly days, there are types which have flaps to be brought down and buttoned under the chin, protecting the ears of the wearer. Very thin silk caps are carried in a variety of colors and shapes, and they are perhaps the most favored of all for summer touring. A novelty in cap-making is illustrated on page



Heat-proof jar for carrying ice cream or soup and six cups which fasten together in compact form



The foot-rest lunch trunk open. It has an elaborate outfit for four



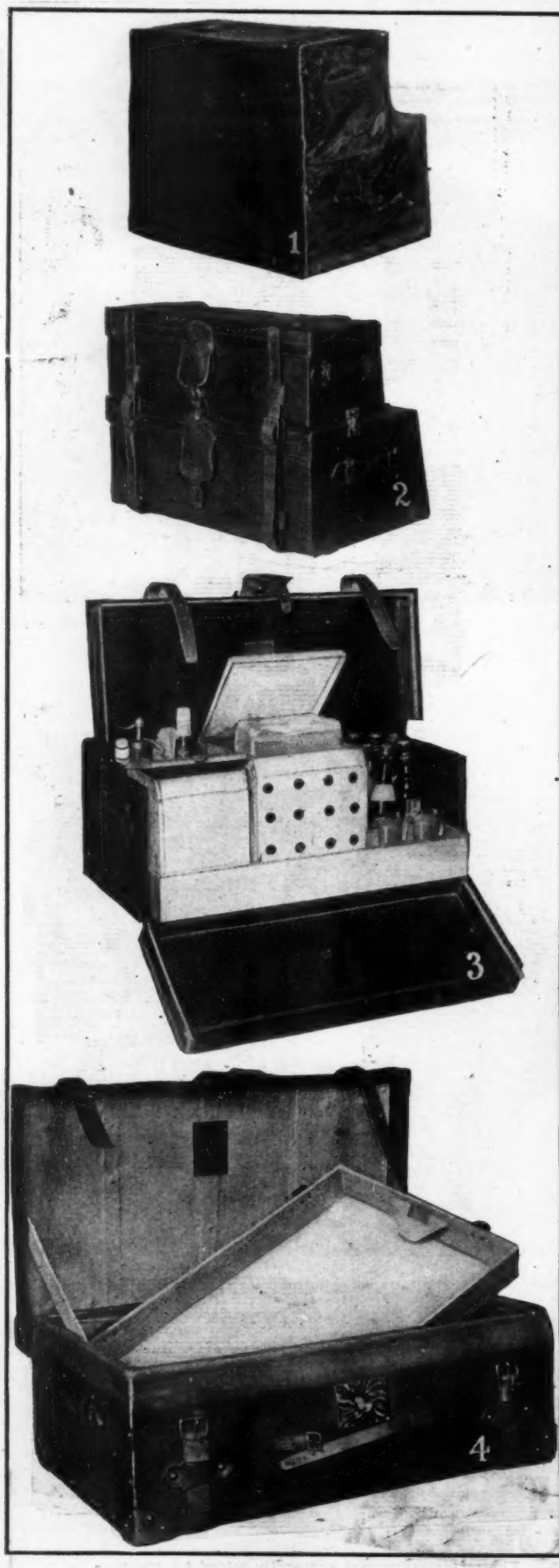
This lunch trunk is a convenient size for the small touring car



The motor restaurant when opened up ready for the luncheon



The motor restaurant compactly folded for the tour



1207, Fig. 5. This cap has an adjustable device for varying the size of the band, through the agency of the buckle shown in front. After the band has been made the proper size, the end of the draw-string can be tucked away at the side and the front clasp fastened, thus completely concealing the fact that the cap is an adjustable affair. This novelty is made in linens, silks and cheviots and it sells from \$2 to \$3 depending on the material.

But, as with everything else of the apparel line, the variety comes in the ladies' motor bonnets and hats. For downright service the hat shown in Fig. 2, page 1208, makes a strong appeal. It costs but \$5 and the variety of materials and colors is extensive. With the present coiffure styles, no hat pins are needed, the hat slipping down over the head snugly in defiance of all winds. Fig. 1 on the same page illustrates a motor bonnet in combination with a veil, the latter being fastened permanently to the hat. The latter is of hemp braid and the veil of chiffon. It is large enough to come down over the face if desired and tie under the chin, rendering hat pins unnecessary. The price is \$12.50. Another hat which has the same scheme of attached veil is pictured on page 1209, Fig. 1, but the cost is somewhat more than the other model. Such a veil as that shown, when bought separately, costs \$5. It is dustproof and washable, 2 1-2 yards long and 32 inches wide.

Various hoods and veils are to be seen in the other illustrations, and perhaps the style shown in Fig. 5, on page 1208, is deserving of more than passing notice. There is a veil attached and flaps at the sides, which are normally turned up and fastened each with a single button, may be brought down and fastened under the chin, if the wearer wants further protection from wind or weather. The model is of straw and the inside is trimmed with plaid silk material in a variety of colors. The price is \$5 to \$10.

In connection with hats for madam's touring outfit, the Jeanette hoods and other hat coverings should not be forgotten. This peculiarly-named article, shown in Fig. 2, page 1209, is designed to fit over any kind of hat and at the same time to protect the neck and sides of the face. When put on it will hold the hat in any position and precludes the uncomfortable feeling which madam often experiences when she is riding and in constant fear that her hat will blow off. The price of this hood in all colors of China silk is \$3.

The hat bag on page 1206, Fig. 6, is also very convenient for milady. It is inexpensive—\$1 to \$3—and may be had in silks of all colors.

Goggles should not be forgotten. These are to be found in all forms and colors, to say nothing of all prices. Rubber ventilated types are much in favor. One novel design is that depicted on pages 1206 and 1207, which is a European importation selling at \$1 to \$3.50. It is called the folding hood goggle, small clasps at the tops of the light shades holding the latter in their folded position when desired.

For the chauffeur, the standard types of clothing are still in vogue. A neat double-breasted coat for this individual is seen on pages 1204 and 1205, Figs. 5 and 1, respectively. This type is very long and comfortable. It has a convertible collar and is plaited on the sides. The cost runs from \$35 to \$65, and the variety of materials is very large. Such cloths as woolens, serges, whipcords, tweeds and cashmeres predominate, and the aim of the manufacturer is universally to make the garment warm without great weight.

The rubber shirt for the chauffeur is illustrated on page 1205, Fig. 5. This slips on over the head and has a pure rubber neck.

Baggage for the extended automobile trip:

1. Trunks well protected from the elements by waterproof cover
2. The trunk combination with cover removed, showing manner of fastening together
- 3 and 4. Two trunks which may be used in combination as above. Fig. 3 shows a novel means of refreshment on the road, while Fig. 4 depicts the more practical lower unit for wearing apparel

The body of the garment is either mackintosh or rubberized material. It comes in either black, white, tan or maroon at \$15 to \$30.

Ordinarily, the accepted chauffeur's livery is as shown in Fig. 2, page 1204. There is a jacket of the Norfolk variety, puttees or leggings and standard cap. This outfit complete runs from \$35 to \$45, depending on the quality of the material.

Having settled the matter of apparel to their satisfaction, the next consideration of the intending tourists is the comforts which help to make the trip enjoyable and which must not unnecessarily load up the car. There is such a thing as too much equipment, and if the party is a large one in the first place, only the most compact articles should be secured.

Very convenient is the robe-holder shown in Fig. 2, page 1206. This is a strap arrangement of adjustable length designed to be used as shown. It may be passed around the shoulders or the waist and there are easy-sliding clasps for attachment to the robe. The price is 75 cents.

Another of the season's novelties is the self-inflating air cushion which is an importation from France. It comes in two sizes at \$8 and \$9, and is shown in the process of inflation in Fig. 3, page 1207. Its advantages are in its extreme compactness when not in use and the doing away with the usual annoyance of blowing up such cushions at the expense of the lungs. After the cushion has been stretched out and the required amount of air drawn in automatically, the valve shown at the end is closed and the strap fastened across. It is then ready for use, and will be found to be a great comfort.

On page 1203, Fig. 1, is pictured a very attractive and almost necessary part of the touring equipment, so far as miladi is concerned. It is an automobile dressing roll. Why it is called a roll we are at a loss to say, for when the fasteners at the sides are disengaged there is spread before madam almost every article for which she can have any need. There are brushes, powder cases, hand mirror, and so on. The case is provided with a handle and when closed has very much the appearance of an ordinary handbag. The leather comes in several colors and two sizes may be purchased, one at \$13.50 and the other at \$21.50. The articles are all of white composition material.

Lunch kits are with us in profusion, there being types for two, four, six and eight persons. There are wicker and leather varieties which, when closed, are entirely dust proof.

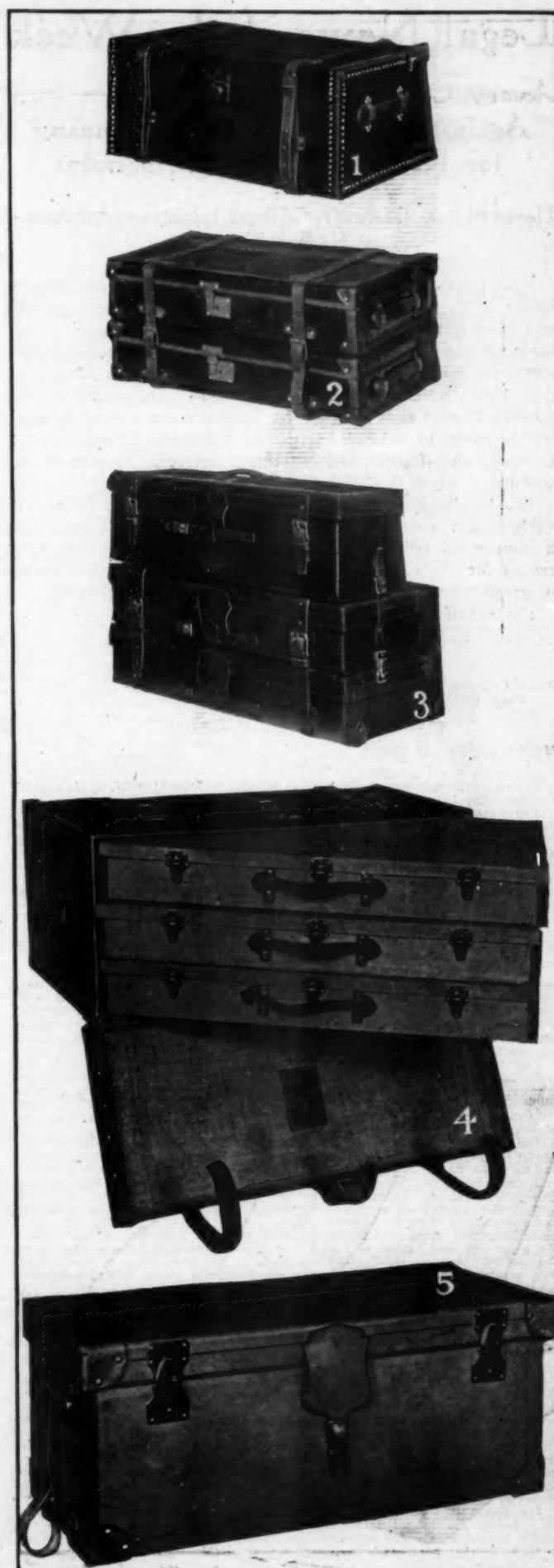
Fig. 5, on page 1203, illustrates a case for two persons which leaves nothing to be desired. A tin box for the carrying of sandwiches, bread and the like, and spoons, forks, knives, cups are in twos. The case when closed measures about 14 inches in height, is 6 inches wide and 18 inches long. For compactness, it is questionable if any article can be found to surpass it, when all the articles carried are taken into consideration. The same design may be had for four or six persons. The prices for the three sizes range from \$18 to \$32.

Larger and more elaborate lunch trunks are to be found in every supply store, and a number of them are illustrated. The wicker basket idea has been made use of, as will be seen. This motor basket for six, Fig. 5, page 1210, commands a price of \$35, without the Thermos bottles which are shown at the ends. The knives, forks and spoons are fastened in the cover, as well as the plates, each article having a place of its own. There are

(Continued on page 1230)

Various trunk combinations for the motorist:

1. A baggage unit which may be used singly or in combination with several others
2. Very popular arrangement which is compact and has clothing accommodations for at least two persons
3. This unit construction is often seen on the trunk rack at the rear of the car
4. Three cases within a single outer and heavier trunk. Any desired case may be taken out without disturbing the others or removing the main case
5. Very fine leather automobile trunk of substantial design



Legal News of the Week

Avery Company Gains Decision in Suit Against Milwaukee Casting Company for Reflector Patent Infringement

Hopewell Sues Linscott for Alleged Infringement of Annular Tire Case

MILWAUKEE, Wis., May 27—Percy C. Avery, of Milwaukee, owner of the Avery Portable Lighting Company, has won his suit against the Milwaukee Bronze Casting Company for alleged infringement of his patent 986,668 covering a reflector for motor car lamps. Judge A. L. Sanborn of the United States District Court of the Western Wisconsin District, sitting in the Eastern District at Milwaukee, has handed down a decision holding the patent to be valid, holding the Milwaukee Bronze Casting Company an infringer, and ordering a decree to be entered accordingly.

The decision goes into the history of electric lamps for motor vehicles and acknowledges the Perry patent, 650,418, covering a spun metal reflector placed inside of a shell. The decision credits Mr. Avery with originating a much more simple device of greater durability, constituting a distinct step in advance.

The text of the court's opinion is as follows:

DISTRICT COURT OF THE UNITED STATES,
EASTERN DISTRICT, WISCONSIN,

PERCY C. AVERY AND THE AMERICAN
BRASS FOUNDRY CO.,

Complainants,

vs.

MILWAUKEE BRONZE CASTING CO.,
Defendant.

IN EQUITY:

Suit for infringement of Patent No. 986,668, issued May 14, 1911, applied for April 29, 1910, for a Reflector for Automobile Lamps.

The date of the invention is carried back to Sept. 22, 1909, by the evidence. In the specifications the inventor states that the reflectors in common use are made of sheet metal, usually copper, stamped to approximately the desirable parabolic shape, then plated with silver or nickel, but that a true parabolic surface cannot be imparted to stamped sheet metal as a thin metal is injured by heat, is easily bent and dented, and will not retain the desired shape, so that the reflector then in use did not project the light in a thoroughly efficient manner. He further states that the primary object of his invention is to provide a reflector for lamps such as are commonly used on automobiles, which cannot be bent or dented, which may have imparted thereto a true parabolic surface, which will retain such surface in usage, and which will be non-corrosive and efficient.

The file wrapper shows that the inventor claims in his first four claims a cast metal reflector for lamps having an integral polished reflecting surface, parabolic in shape, and having lugs cast integrally therewith. The fifth claim, which was allowed as the first claim in the patent, reads as follows: "A cast metal reflector for lamps having circular flange concentrically cast on the outer surface thereof, and having an integral polished reflecting surface."

The inventor also claims in his sixth claim a combination with the reflector described in the count above quoted, a lamp supporting plug extending concentrically through the reflector surrounded by said circular flange; a lamp supported within the reflector by said plug, and a cover removably secured to said circular flange for supporting the outer end of said plug. Three process claims were also included.

The examiner did not disallow the claims, but required a division because the first five claims and the process claim were classified in the patent office under optics, while claim 6 was classified under illumination, and there being a clear line between the two sets of claims, division was therefore required. In response to the request of the examiner the applicant first cancelled claim 6 and requested reconsideration. The examiner again requested division between claims 1 to 5 and 6, 7 and 8. The later requirement of division was waived, and the first four claims rejected on the prior art, and claims 6, 7 and 8 were also rejected because they were thought to cover merely the obvious steps in the production of the article. The applicant then cancelled all the claims except claim 5, and suggested another claim, reading as follows:

"A cast metal reflector for lamps having attaching lugs cast integrally therewith, said reflector having a circular flange concentrically cast on the rear outer surface thereof, and having an integral polished reflecting surface."

Which claim was allowed, together with the original claim 5, and patent issued accordingly.

It will be seen from this statement of the contents of the file wrapper that the applicant did not give up any part of his invention, simply yielding to the position of the examiner, that claim 6 for the combination of the lamp socket with the reflector was so obvious not to require statement in a claim.

Complainants' commercial forms show a cast metal reflector with a circular flange at the rear which is used as a housing for the electrical connection and the socket of the lamp which projects forward into the rear part of the reflector. A tight cap is placed over the flange to protect the electrical connections from the weather.

The testimony shows that on April 5, 1910, complainant company gave an order to the defendant for the manufacture of castings for use in the patent lamp. This order contained the following statement:

"It is further stipulated, in consideration of this order, that you will not

mold or cast any lamp reflector from these patterns for any firm, person, or persons, otherwise than ourselves."

Defendant made castings and delivered them to complainant, but they proved unsatisfactory, and a part of them were returned. In the fall of 1910, and before the patent was issued, defendant made a lamp substantially like the Avery lamp, but upon patent being issued discontinued the manufacture of that form. After the issue of the patent defendant changed its construction by making a lamp very similar to the patent device, but instead of having the circular flange at the rear cast integrally with the reflector, defendant substituted a cap which it fastened to the reflector by bolts or screws near the body of the lamp, using only a very small flange for the purpose of anchoring the cap. In appearance the two lamps were substantially the same. In other words, the defendant simply cut off the circular flange of the complainant near the body of the reflector, but in all other respects conformed almost exactly to the patent form. Later on complainant enlarged the opening into the reflector from the circular housing so that the lamp could be withdrawn from the rear without opening the lamp in front. Defendant followed by a like improvement. Still later a suggestion was made to defendant by a person who had seen the patent lamp in Chicago in respect to changing the brass rim or bevel of the reflector by making it more rounding or bulging. Defendant has uniformly paid the complainants the compliment of copying the patent form and commercial form as near as possible, but avoided the latter of the claims in so doing.

The main difference between the prior art and the patent form is that the spun metal lamps of the prior art consisted of a reflector placed inside of a bell-shaped shell giving room for the electrical connection between the reflector and the shell. The prior art shows several forms of reflectors with circular flanges, designed however for an entirely different purpose. The nearest approach to the complainants' design in the prior art is the Perry patent of May 29, 1900, No. 650,418. The Perry drawing shows that between the reflector and the shell of the lamp there is a complicated arrangement for the electrical connection. The claim of the Perry patent covers a combination of seven elements. The lamp is made of spun metal, with all the objections referred to in the specifications of the Avery patent. For this complicated device Avery substituted a simple cast metal reflector, limiting the invention to two or three elements, making a more durable lamp, and one of great simplicity. In view of the prior art while the Avery patent constituted a distinct step in advance, it is no doubt subject to a limited construction with a narrow range of equivalence.

Defendant's lamp is substantially the same as Avery's, which has been copied as near as possible so as to avoid the letter of the claims. It makes no difference whether the circular flange is made longer or shorter, or whether the cap used as a housing for the electrical connection be made to include the circular wall, or whether such walls be cast integrally upon the body of the reflector. It is of no consequence at what point the circular wall is cut off, whether near the outer cap or near the body of the reflector. Within the narrowest rules of construction, both are substantially the same.

The patent should be held valid and infringed, and a decree be entered accordingly.

A. L. SANBORN,
Judge.

Sue for Tire Case Infringement

NEWTON, MASS., May 27—Hopewell Brothers of this city have sent out notices to the trade that suit has been commenced in the United States District Court at Boston against the Linscott Supply Company for alleged infringement of patents 859,215 and 881,411 covering an improved type of annular tire case, the chief feature of which is its system of draw-strings to hold the case firmly upon the tire.

Charge That Rate Is Exorbitant

MILWAUKEE, Wis., May 27—The Wadhams Oil Company of Milwaukee, one of the largest middle western independent oil companies, with branches in 26 cities, has filed complaint against the Pittsburgh & Lake Erie and other common carriers to obtain a readjustment of freight rates from Pennsylvania to Milwaukee. The present rate on petroleum from Coraopolis and Neville Island, Pa., to Milwaukee is 18 cents per 100 in carload lots and this is declared to be unreasonable and exorbitant. The complaint asks the Interstate Commerce Commission for a readjustment and reparation for excess.

Sounding Horn Does Not Exonerate

BOSTON, MASS., May 25—According to a decision of the Supreme Court of Massachusetts handed down this week "blowing a horn on a motor car does not give any exclusive right of way or relieve the driver from the duty of proceeding at a reasonable rate of speed and keeping his car in control when approaching a busy thoroughfare." The decision resulted from an appeal made by Amos H. Whipple, a Boston hotel man, against whom was rendered a verdict for \$2,000 as the result of his car fatally injuring Albert E. F. Rasmussen, a newsboy, on Blue Hill avenue, Mattapan, in April, 1907.

In its decision the court states that the driver did not have a license to travel at a speed of even 8 miles an hour under the circumstances as brought out in the evidence. Here is what the

court says on this point, and it is interesting to all owners of motor cars:

"Every person operating a motor car on our ways must run it at a speed that is 'reasonable and proper, having regard to the traffic and the use of the way and the safety of the public.' And the jury would be warranted in finding that it was negligent to run the automobile at this place under the circumstances then existing at a speed of 8 miles per hour or even less. The statute then in force did not relieve the driver of the machine from exercising reasonable care to avoid injuring other travelers with equal rights on the public way. There was testimony that the signal horn was sounded, but it was not heard by a number of witnesses to the accident, and under the circumstances the jury could infer that it was not sounded loud enough or sufficiently near the place of the accident to give timely warning. Nor is it contended that even the loud blowing of a horn would give to the motor vehicle any exclusive right of way or relieve the driver from the duty of proceeding at a reasonable rate of speed and keeping his car in control when approaching a busy thoroughfare. There was evidence for the jury of the defendant's negligence."

Atlas Appeals in Weed Suit

Appeal of the Atlas Chain Company in the suit instituted by the Weed Chain Tire Grip Company was presented in the United States Circuit Court of Appeals on Monday and the case was taken under advisement. The only new feature of the presentment was the introduction by the Atlas attorney, J. E. Bull, of a defense predicated upon the Thompson armor plate.

F. S. Duncan on behalf of the Weed company alleged that such a device would prove to be similar in its effect to putting skates on an automobile and disclaimed any possibility to overthrow the Parsons non-skid patent by such an analogy.

Wants Modified Traffic Rules

BOSTON, MASS., May 27—D. C. Tiffany, representing the Electric Vehicle Club, of Boston, called on Mayor John F. Fitzgerald last week and requested that he take up the matter of traffic regulations with the street commissioners of Boston to see if a compromise might not be reached that will benefit motor car owners. He pointed out that at present because of rules in force owners of motor cars cannot come downtown to do their shopping unless they have some one drive their cars who will keep the machines moving about, returning at a designated time for the owners.

Mr. Tiffany said that the time limit for allowing trucks and cars to stand beside business establishments should be lengthened. He requested that owners of cars be allowed to let them stand on Tremont street beside the Common evenings while they are attending the theaters. He pointed out that the present traffic regulations were put in force some years ago and that they are not adequate for present conditions. Mayor Fitzgerald promised to take the matter up with the street commissioners shortly and have a public hearing on the matter.

BROCKTON, MASS., May 25—At a meeting of the creditors of the Leighton Automobile Company, of Brockton, Mass., called by W. H. Marble, the assignee, it was agreed that the business be closed out as soon as possible. The company occupies the cement and steel garage at the corner of Warren avenue and Bartlett street. The largest and principal creditor is the Leighton estate, owner of the property.

NEW HAVEN, CONN., May 27—Suit has been brought in the sum of \$1,000 each against the New Haven Taxicab Company by Mr. and Mrs. Philip Levites, of Ansonia, Conn., who allege that while returning home one evening recently from a theatrical performance in New Haven the taxicab in which they were riding collided with another vehicle, injuring them.

Light on Lighting Laws

Connecticut's Secretary of State Clears Up a Tangle that Has Been Bothering Nutmeg State Automobilists

A Car Standing Unoccupied on a Road or Street Must Carry Lights

BRIDGEPORT, CONN., May 27—Owing to the evident uncertainty on the part of owners and operators of motor vehicles with regard to lighting requirements, Secretary of State M. H. Rogers of this city submitted the question to Attorney-General John H. Light. The attorney-general's opinion is for the benefit of Connecticut owners and violation will be rigidly investigated.

The opinion follows:

HON. M. H. ROGERS, Secretary of State.

Dear Sir:—In your recent favor you say: "Owing to the fact that there seems to be an understanding on the part of many owning and operating motor vehicles as to the requirements of the motor vehicle law as to the lighting of their vehicles at one-half hour after sunset and half an hour before sunrise, I would ask your opinion as to whether the construction of section 4 and section 7 applied to machines which are stationary on the highway and which the occupants have left for a period of time, or do these sections apply only to machines in motion."

The object of construction and interpretation of statutes is to ascertain the intent of the legislature for the purpose of carrying it into effect in the enforcement of the law.

In this the courts are aided by the doctrine of implication. This doctrine does not authorize them to supply things unintentionally omitted from the statute, but it does allow the drawing of inferences from the general meaning and purpose of the legislature, and from the necessity of making the law effective as to those minor or specific things in its broad or general terms, which the legislature must have seen and intended.

The sections of the law referred to by you provide for the display of marker and lights, and the use of brakes, horns, etc., on every motor vehicle while in use or operation on the public highways of the state.

During the time when a motor vehicle is required to display lights, namely, from one-half hour after sunset and one-half hour before sunrise, the rear registered number must be illuminated as to be legible at a distance of 60 feet. The rear light must be so placed as to show a red light from behind, and a white light so arranged as to illuminate the rear number plate. This is a justifiable exercise of the police power in the interest of the safety of the traveling public. These requirements serve to prevent accidents and to identify the vehicle and operator in case of an accident.

Now, when may a motor vehicle be said to be "in use or operation on the public highways"? I am of the opinion that the words "in use" or "in operation," as employed in the statute in question, include every situation of a motor vehicle in commission upon the public highway, and to extend to such vehicles as are left "stationary" upon the highway, while the operators make a call or transact business. Therefore, at all times, when so used from a half hour after sunset to a half hour before sunrise, lights must be displayed on such vehicles.

Respectfully submitted,

JOHN H. LIGHT, Attorney General.

Celebrate Lower Insurance Rates

INDIANAPOLIS, IND., May 27—The first municipal parade ever held in the United States commemorating a reduction in fire insurance rates through the acquisition of motor fire apparatus was held in this city last Friday afternoon. There were 1,100 city officials and employees in line.

Probably the most attractive display was that of the fire department, around which most interest centered. The motor apparatus in the fire department includes a touring car for the chief, two squad wagons, two combination hose and chemical wagons, a ladder truck and a combination pump and hose.

Mayor Shank and Richard Lieber headed the parade in a snow white Cole. Mr. Lieber was chairman of the committee of the mayor's advisory commission which conducted the investigation leading to the reduction in fire insurance rates, which reduction amounts to about \$150,000 annually.

All of the municipal motor cars were in line, ranging from runabouts to the ambulances used by the city hospital and city dispensary. A half-holiday was declared by the mayor for the event.

WASHINGTON, D. C., May 27—Under an order of the Equity Court, Harold N. Dewitt, receiver of the Pope Auto Company, on May 31 will sell at public auction the goods and chattels of the company.

Second-Hand Car Show

Boston Promoter Devises Unique Scheme to Dispose of Used Automobiles —Charges Admission

United States Rubber Increases Its Surplus—Still Discussing Oldfield Bill

BOSTON, MASS., May 27—Boston's show for used and renewed cars will open at the Arena June 5 and run a week, and many of the local dealers are interested in the outcome of it. A meeting of the Boston Automobile Dealers' Association was called to consider the matter of taking space, but it was voted not to enter the show. A few of the dealers were in favor of it, but the majority opposed it as an organization. The vote of the association, however, did not bind any member from taking space as an individual.

O. D. Corbett, who is managing the show, seems very optimistic over the prospects for it. He claims to have sold the greater part of the space already and before the show opens he expects to close out the rest. Whether he will be able to get rid of all his space without letting down the bars to the second-hand dealers is what some of the men who have already taken space are wondering.

Tires Must Live Up to Guarantee

TOLEDO, O., May 27—An important decision was handed down in Common Pleas Court by Judge Chittenden today when it was decided that a rubber manufacturing company is liable for a guarantee given on an automobile tire. A jury awarded Attorney A. S. Brumback a verdict of \$49.50, the full amount asked in his suit against the Michelin Rubber Company, of Cleveland, to recover on two automobile tires which he alleged were defective. The company guaranteed the tires to withstand 3,500 miles of travel and Mr. Brumback alleged that he has used the one on but 1,700 miles and the other one but 35 miles.

Too Much Business for Sport

DES MOINES, IOWA, May 27—The All-Iowa "Little Glidden" tour, which had been planned for the middle of June, has been postponed until fall. The pathfinder was to have started last week but the automobile business in Iowa is so rushing at the present time that the dealers do not want to leave the business for such a tour. In September it is thought the business will be more quiet, and in addition the weather will be much more pleasant than the June dates.

U. S. Rubber Adds to Surplus

According to a statement sent out by Samuel P. Colt, president of the United States Rubber Company, the common dividends for the year amounted to \$4,550,000 and the surplus of the company was increased by about \$2,000,000. On April 1 the surplus of the company was \$9,175,729, including that of the direct subsidiaries. On January 1 the Rubber Goods Manufacturing Company, of which the United States Rubber Company owned practically all the common stock and over 75 per cent. of the preferred issues, had a surplus of \$8,260,877.

United Motors Changes in Boston

BOSTON, MASS., May 27—Changes have just been announced in the management of the United Motors Boston company that proved somewhat of a surprise to the Boston colony. Manager

F. J. Tyler, who has been at the head of the Boston division for some time, and who before that handled the Maxwell agency as an agency and a branch for some years, has resigned. Lucius Tyler, his brother, who has been connected with the company a long time also, while he has not made any announcement, may also retire. F. J. Tyler had general charge of all the United States Motors products except the Columbia, and Lucius Tyler managed the Maxwell branch.

Ernest H. Brandt has been sent to Boston as supervisor of the New England branches with headquarters in Boston. Manager Ralph Coburn, of the Stoddard-Dayton, who was recently promoted to that position from a place in the Maxwell, has been made manager of the United Motors Boston company and A. W. Mutty will manage the Stoddard-Dayton.

Still Discussing the Oldfield Bill

WASHINGTON, D. C., May 28—Hearings on the proposed Oldfield bill have been closed for the time being so far as the protests against sections 17 and 32 are concerned. These sections apply to the compulsory licensing and maintenance of prices at retail and resale. Protests against other sections will probably be arranged before adjournment.

W. C. Dodge, who is president of the Patent Law Association of Washington, appeared before the House Patent Committee on the last day of the hearing on the Oldfield bill, and vigorously attacked it. He said that his principal objection to

Market Changes for the Week

The metal market was firm throughout the week, although dealings were somewhat smaller than during the fortnight previous. Steel prices remained unchanged and copper held fast to its high price, at a moderate rate of buying. The amount of pig iron ordered during the week is less than what it was during the week before, and no record-breaking steel orders were received. An interesting development is the rise of 1-2 cent in the price of antimony, showing a constantly growing demand for this material for bearing uses. Tin advanced continuously during the week.

Lubricants and oils remained practically unchanged. The price of linseed oil, advancing 2 cents, was practically the only development in this department. The break in cottonseed oil continued. Gasoline continued to sell at 19 cents a gallon for 200-gallon lots. Likewise, petroleum suffered no change in price.

Rubber was irregular and dealing therein limited during the entire week. The price of fine up-river Para, which was \$1.10 at the opening of the week, fell to \$1.09 on Friday and then remained there. The following table shows the price changes for the week:

Material	Wed.	Thurs.	Fri.	Sat.	Mon.	Week's Change
Antimony, per lb....	.06½	.06½	.06½	.06½	.07	+ .00½
Beams & Channels, 100 lbs.	1.36½	1.36½	1.36½	1.36½	1.36½	.....
Bessemer Steel, Pittsburgh, ton ...	20.00	20.00	20.00	20.00	20.00	.....
Copper, Elect., per lb. .16 35/100	.16½	.16½	.16½	.16½	.16½	+ .00 3/20
Copper, Lake, per lb. .16½	.16½	.16½	.16½	.16½	.16½	.....
Cottonseed Oil, June, bbl.	7.11	7.01	6.95	6.95	6.89	0.22
Cyanide Potash, lb..	.20	.20	.20	.20	.20	.....
Fish Oil, (Menhaden)	.40	.40	.40	.40	.40	.....
Gasoline, Auto, 200 gals. @.....	.19	.19	.19	.19	.19	.....
Lard Oil, prime.....	.85	.85	.85	.85	.85	.....
Lead, 100 lbs.....	4.15	4.15	4.17½	4.17½	4.20	+ .05
Linseed Oil .....	.76	.76	.76	.78	.78	+ .02
Open-hearth Steel, ton	21.00	21.00	21.00	21.00	21.00	.....
Petroleum, bbl., Kansas crude.....	.68	.68	.68	.68	.68	.....
Petroleum, bbl., Pa. crude.....	1.55	1.55	1.55	1.55	1.55	.....
Rape Seed Oil, refined .....	.68	.68	.68	.68	.68	.....
Rubber, Fine Upriver Para	1.10	1.10	1.10	1.09	1.09	+ .01
Silk, raw Italian.....	.....	.....	.....	.....	4.15	.....
Silk, raw Japan.....	.....	.....	.....	.....	3.65	.....
Sulphuric Acid, 60 Beaumé .....	.99	.99	.99	.99	.99	.....
Tin, 100 lbs.....	45.25	45.50	46.37½	46.35	46.62½	1.37½
Tire Scrap .....	.08½	.08½	.08½	.08½	.08½	.....

the bill was based on the fact that it had been drawn by Commissioner of Patents Moore. Mr. Dodge declared that Commissioner Moore had not had sufficient practical experience to enable him to draw such a bill. Mr. Dodge also declared that that section of the bill which would require a patented invention to be actually marketed and sold within four years after the issuance of the patent was very objectionable, as it takes years to market some articles.

Reo's 10 Per Cent. Dividend

LANSING, MICH., May 27—The Reo Motor Company has declared a 10 per cent dividend. The dividend is the first to be declared since June, 1910. The capital stock of the company is \$2,000,000. In August, 1909, the company paid a 20 per cent. dividend. In June, 1910, a 30 per cent. dividend was paid. The Reo Motor Truck Company, which is largely owned by stockholders of the Reo Motor Car Company, paid a 30 per cent. dividend last fall.

Goodrich Decreases Its Capital

COLUMBUS, O., May 27—Papers have been filed with the secretary of state decreasing the capital stock of the B. F. Goodrich Company, of Akron, O., from \$20,000,000 to \$200,000. The change in the capitalization is one of the steps taken by the company in the absorption of the Diamond Tire & Rubber Company, which was announced recently. The larger company, which was capitalized at \$45,000,000, was chartered under New York laws. While the Ohio charter was not surrendered, the capital was reduced to avoid paying a large excise tax on the capitalization.

Automobile Securities Quotations

Automobile securities exhibited an undertone of strength in the markets during the past week. One of the notable instances was the bulge in United States Motor common, which advanced in bid price from 5 to 9, or 80 per cent. General Motors common also showed strength and stood firmly at 35 bid. Goodrich was steady at about top prices so far for this movement and there was no pronounced weakness anywhere in the list of accessory making concerns. Preliminary reports from various factories indicate a large increase in product for this year. Contrary to the general impression that has obtained, April was the best month all around that the automobile industry has enjoyed. Monday's prices are compared with those of a year ago:

	May 27, 1911		May 27, 1912	
	Bid	Asked	Bid	Asked
Ajax-Grieb Rubber Co., common.....	...	...	...	125
Ajax-Grieb Rubber Co., preferred.....	...	...	...	100
Aluminum Castings, preferred.....	...	...	100	...
American Locomotive, common.....	40	40½	42½	42½
American Locomotive, preferred.....	108	108½	108	108½
Chalmers Motor Company.....	...	...	140	160
Consolidated R. T. Co., common.....	3½	5	17	19
Consolidated R. T. Co., preferred.....	15	25	35	60
Diamond Rubber Company.....	270	273	384	386
Firestone Tire & Rubber Co., common.....	167	170	278	282
Firestone Tire & Rubber Co., preferred.....	103	105	106½	107½
Garford Company, preferred.....	...	...	99	101
General Motors Co., common.....	40½	41	35	36
General Motors Co., preferred.....	80½	81	75	76
B. F. Goodrich Co., common.....	240	245	*86	86½
B. F. Goodrich Co., preferred.....	113	115	*108	108½
Goodyear Tire & Rubber Co., common.....	281	221	275	285
Goodyear Tire & Rubber Co., preferred.....	101	102	105	105½
Hayes Manufacturing Company.....	...	...	28	34
International Motor Co., common.....	...	...	90	94
International Motor Co., preferred.....	...	...	45	53
Lozier Motor Company.....	...	...	163	165
Miller Rubber Company.....	...	...	104½	106
Packard Motor Co., preferred.....	...	...	...	...
Peerless Motor Company.....	55	57	29	31
Pope Manufacturing Co., common.....	75	77	73	75
Pope Manufacturing Co., preferred.....	9	10	9½	10
Reo Motor Truck Company.....	23	24	25½	26½
Reo Motor Car Company.....	...	...	38	40
Studebaker Company, common.....	...	...	96	98
Studebaker Company, preferred.....	...	...	108	110
Swinehart Tire Company.....	...	...	85	...
Rubber Goods Co., common.....	...	...	104	108
Rubber Goods Co., preferred.....	38	39	9	9½
U. S. Motor Co., common.....	80	80½	29	30
U. S. Motor Co., preferred.....	...	...	107½	108½
White Company.....	...	...	...	...

*New.

Diamond Sale is Ratified

Disposal of Plant to Goodrich Company Unanimously Sanctioned at Meeting of Stockholders

New York Will Be the Mecca for the Automobile Industry Next Week

AKRON, O., May 27—Stockholders of the Diamond Rubber Company this afternoon unanimously ratified the action of the directors in the sale of the plant to the Goodrich company. All that remains to do is the formal transfer.

One of the rumors of the day was that there is to be a rate war between the Goodrich company and the United States Tire Company. It was claimed today that the new Goodrich-Diamond company will be on one side and representing the combined independent interests and the United States Tire Company a \$75,000,000 consolidation of the Morgan and Wright, the Continental the Hartford and the G. and J. Tire companies on the other. The first big cut on automobile tires was made by the Goodrich company recently.

H. S. Firestone, President of Firestone Tire and Rubber Company, said today that the rate war will not come for a year. Mr. Firestone added that he is not alarmed.

Frank A. Seiberling, President of the Goodyear Tire and Rubber Company, just home from Europe, said that he knows nothing of the rumored rate slashing.

"There is absolutely nothing to the rumor," said Mr. Seiberling, "that the Goodyear and other independent companies might get together as did the Goodrich and Diamond."

Mr. Firestone also denied that there is any possibility of his company going into a combine with any of the other tire companies. "No price could be offered," said he, "that would induce me to sell out or consolidate."

In the meantime the air is full of rumors and other big doings in the rubber world would cause no great surprise.

Five Big Meetings Due at Gotham

New York will be the Mecca of the automobile industry next week when all the great national organizations have meetings scheduled. The National Association of Automobile Manufacturers and the Automobile Board of Trade hold regular meetings on Wednesday; the American Automobile Association will meet in semi-annual convention at the Astor on Thursday. The directors of the Motor and Accessory Manufacturers assemble on Thursday and the truck convention, the second of its kind in the history of the industry, will be called to order at the headquarters of the N. A. A. M. on Tuesday.

It is believed that there will be present in New York next week more prominent men connected with the industry than ever before save at show time.

Increase in Customs Transactions

WASHINGTON, D. C., May 27—The monthly statement of customs transactions shows the total value of exports during April to have been \$176,100,000. This is almost \$22,000,000 more than April, 1911. Imports for April totaled \$162,700,000, which is over \$42,000,000 more than in April, 1911. For the first 10 months of the fiscal year exports were \$1,865,300,000 against \$1,726,500,000. Imports during the same period were \$1,366,800,000 against \$1,274,600,000.

Crude rubber importations for the first 10 months of the fiscal year were 425,000,000 pounds against 303,000,000.



General view of the Newark, N. J., truck parade, showing a part of the Autocar contingent

Newark's Truck Parade

First Demonstration of Commercial Cars in Jersey Metropolis Brings Out 165 Vehicles of 49 Makes

**Autocar Contingent Included 41 Cars—15 White Trucks
in the Procession**

NEWARK, N. J., May 26—Newark's initial motor truck parade was held yesterday afternoon, 165 vehicles of all types and descriptions, comprising 49 different makes, being in line. The affair was an unqualified success, due to the efforts of the automobile dealers of the city and to the very favorable weather conditions.

The run had a total length of 12 miles through the business section of the city, and it terminated at Olympic Park, where the cars were arranged for the inspection of those business men interested in learning per mile costs and other data, as well as information as to the mechanical construction and operation of the several makes on view.

More than half a million dollars was represented in the value of the trucks shown to the throngs throughout the business section of the city, and the dealers believe they have set more than one staid business man to thinking that perhaps the commercial car is the thing after all and that he would save money by its use.

In contradistinction to the recent New York parade, practically every vehicle in the line carried some decoration in the way of signs, flags or bunting, adding much to the picturesqueness and novelty of the affair. No trouble to speak of was experienced in complying with the city traffic regulations, although the long line was split several times in passing the usually congested Four Corners. In general, however, the parade maintained perfect order, passing finally into the park in good form.

Much variety was shown in the vehicles in line. There were vehicles of all capacities, from the small motor cycle delivery car of 300 pounds' load to the very heavy 15-ton truck designed for extreme service. The assemblage was by no means con-

finied to the gasoline type of vehicle, many electrics being seen also.

Half of the vehicles in the parade were entered by private owners, the other 50 per cent. being in the hands of the automobile dealers. This is a very creditable showing, since the number of dealers' vehicles would be expected to greatly outnumber those run by private owners. It brings out the fact that the business interests of the New Jersey city are not slow to realize the advantages of the commercial car. In many cases the privately operated vehicles were loaded with products of the firms entering them.

George Blakeslee had the affair in charge, and with his assistants led the long caravan through the city streets.

The Autocar Company had the largest representation, there being 41 cars of this make, each of 11-2 tons capacity, in the line. This number included many in the service of New York department stores, in addition to those in use in Newark.

The White Company had the next largest showing in point of numbers with its fleet of 15 machines of various carrying capacities or sizes. The Mack concern was third with a total of nine.

Following is a list of the makes in the parade, together with the number of machines of each.

Abell	1	Koehler	1
Adams	1	La France	1
Alden-Sampson	3	Lansden Electric	6
Atterbury	1	Lauth-Juergens	1
Autocar	41	Lippard-Stewart	2
Baker Electric	2	Little Giant	3
Cadillac	1	McIntyre	1
Cartecar	1	Mack	9
Chalmers	2	Mais	5
Chase	3	Mercury	5
Commercial	1	Minneapolis	1
Commer	4	Modern	3
Dayton	1	Newark	1
Detroit Electric	1	Packard	5
Flanders	2	Peerless	3
Ford	1	Pierce-Arrow	5
Garford	5	Pope-Hartford	4
G. M. C.	1	Reo	1
General Vehicle	7	Saurer	3
Grabowsky	2	Simplex	1
Gramm	1	Sternberg	1
Hewitt	1	Studebaker Electric	1
Hupp-Yeats Electric	1	White	15
Kissel-Kar	2		

Preparing for Farmers' Tour

SAN ANTONIO, TEX., May 25—Interest is high in the tour for farmers and stockmen, to be held in August by the *Farm and Ranch* magazine of Dallas. The pathfinder party, com-

prising a Case pathfinder and a Kissel Kar for the press, has completed the logging trip and the official log shortly will be issued. The distance covered from Dallas to the coast and back again was 1,169 miles, over a great variety of country and road conditions. The path-finding trip required 12 days—8½ actual running days, a pause being made in San Antonio because of the muddy condition of the roads south of this city.

The cars made the trip in excellent shape, the only engine trouble being water in the carburetor while crossing a stream. The Kissel Kar made the trip on the same air, returning to Dallas without blowout or puncture. On the route of 1,169 miles 510 miles of paved or macadam road in fine condition was found. There were 260 miles of very good dirt road.

Scipe in Scat Wins Targa Floria

PALERMO, SICILY, May 27—The Targa Floria race of 652 miles around the Island of Sicily yesterday was won by the Scat, driven by Scipe, an Englishman, in 23:37:19. A Lancia driven by Garetto was second in 25:07:38. Giordana, driving a Fiat, finished third in 25:41:04; Maraes, Deutz, fourth, in 25:52:08; Lopez, Fiat, fifth, 26:57:26; Fricassi, Ford, sixth, in 27:12:43; Olsen, Lancia, seventh, 27:24:26; Trombetta, Fiat, eighth, 29:45:20. Two other Ford entries did not start. The Overland entry failed to finish. The Mercedes driven by Nisa overturned at a curve, the driver being injured.

Wisconsin Pathfinders to Get Busy

MILWAUKEE, Wis., May 27—The third annual Wisconsin reliability tour under auspices of the Wisconsin State Automobile Association for the *Sentinel* and Schandeln trophies will be a 5-day affair, starting Monday, July 15. The tentative route was chosen early this week by the executive committee and the Case pathfinder will start on Monday, June 3, to mark the route and make up the tour book. The night stops will be Beloit, Baraboo, Oshkosh and Green Bay.

PHILADELPHIA, May 24—Motorists and motoring enthusiasts are entertaining the hope that a way may be found to get the Fairmount Park Commissioners to reconsider their recent decision prohibiting automobile racing in the Park. A resolution looking to the restoration of the annual event was yesterday presented in Common Council by Frank L. Hardart and adopted.

No Date Set for Big Races

Contest Board Must Take Other Fixtures Into Consideration in Order to Avoid a Conflict

Elgin, Labor Day and Fairmount Park, Still a Possibility. Not to Be Interfered With

DATES for the running of the Vanderbilt Cup race and Grand Prize have not been set so far, despite the numerous reports to the contrary that have been circulated recently. The situation as officially explained by the Contest Board of the American Automobile Association is that the races must not be run less than 3 days apart and the dates should be about midway between the other fixtures that have been definitely established.

The Elgin races scheduled for August 24 are too close to September 2 to allow time for practice on the Milwaukee course after the Elgin events have been run. This would be considered an excellent reason for not sanctioning the Vanderbilt for September 2, even if that date (Labor Day) had not been set off to Indianapolis.

The date for running the Vanderbilt cannot be set until that for the Grand Prize has been determined. Notice to the effect that the races must be run at least 3 days apart has been sent to the Milwaukee dealers' body, which is handling the contests and with it went a suggestion that September 17 and 21 would be appropriate dates for the double bill.

In that case the Milwaukee races would come about half-way between the Labor Day date at Indianapolis and the tentative Fairmount Park date, October 5. While there is still some doubt as to the probabilities both at Indianapolis and Philadelphia, there is a chance that both races will be run.

The Contest Board of A. A. A. has been assured that the Tacoma situation has been cleared. The reported difficulty concerning the races has been adjusted and the races will be staged as planned according to a telegram from F. M. Fretwell. All guarantee money is now available and \$3,500 actually has been deposited. This sum will be used for the purpose of completing the work on the course.



View of the Newark motor truck parade from the City Hall, showing a line-up of the Peerless trucks

Benefit of Road Congress

Recent Meeting of National Good Roads Association Followed by Trials of Various Surfacing Materials

Motorists Take Off Their Coats and Help Repair Road—India's Highways

NEW ORLEANS, May 27—As one of the benefits of the congress of the National Good Roads Association, which was held here recently, has come a general desire to try out different surfacing materials before building roads. The economy in sufficient ballast and painstaking construction evidently has been taken as a lesson by the representatives of many parishes. Several police juries already have recommended less mileage and better construction. Experimental tracts of tarred roads have been put down near this city and in several of the parishes. Under Louisiana conditions tar surfacing is expected to give splendid results, where basic construction is good and where traffic is not unusually heavy. Following suggestions at the Good Roads Congress, experiments are being tried with shells with tar used as a binding material. A surface material formed of an emulsion of tar and crude petroleum also is being tried.

With the inauguration of Judge L. E. Hall as governor of the state an effort is being made to eliminate politics from good roads work. Road management on a non-political basis is expected to place much of the work in the hands of better engineers.

Automobilists Repairing Roads

PHOENIX, ARIZ., May 27—Road-repairing picnics and "log-rolling" parties are the latest fad in Arizona. Last Sunday about twenty members of the Douglas Automobile Club took their machines out on the road east of that city and spent the day with shovels and crowbars, filling chuck holes, grading rough stretches and removing rocks. Members of the Bisbee Automobile Club have spent two Sundays bettering the road between that place and Douglas. The Prescott Automobile Club is planning to have a number of Sunday picnics for the purpose of repairing roads in Yavapai county preparatory to the Arizona Motor Company's sociability run from Phoenix to the Grand Canyon next month.

Booming Good Roads in Nebraska

OMAHA, NEB., May 27—The Omaha Auto-Motor Club and the Omaha Commercial Club have combined to stir up interest in the improvement of the highways near Omaha, and through Nebraska, and to increase interest in travel over Nebraska pikes.

They have outlined a series of three cross-country tours, and a half dozen of Omaha's best boosters will go along each time. It is planned to make the first tour June 1, from Omaha to Sioux City and return. Stops will be made at Calhoun, Blair, Herman, Tekamah, Craig, Oakland, Lyons, Walthill, Winnebago, Homer, Dakota City and Sioux City. The return journey will be made June 2.

The second trip will be to Kansas City with intermediate stops, and the third to Cheyenne, with brief halts at Grand Island, Kearney, North Platte and other cities.

Improving National Park Roads

WASHINGTON, D. C., May 27—Amendments have been proposed in the Senate to the House sundry civil bill which would make possible the improvement of the roadways of the Mount

Rainier National Park, and also those of the Yellowstone National Park. Senator Jones' amendment provides for an appropriation of \$50,000 to be placed in the hands of the Secretary of the Interior to defray the cost of surveying and laying out of a system of roads for the proper development of the Mount Rainier Park, the money to be immediately available. Senator Warren's amendment stipulates the appropriation of an amount necessary for the resurfacing of roads in the Yellowstone reservation leading from Mammoth Hot Springs to the north boundary line; from the Lake hotel station to the east boundary line; from the Lake Geyser Hotel (The Thumb Station) to the south boundary line, and from the Fountain hotel station to the west boundary line, to make them suitable and safe for teams and motor vehicles. The Secretary of War is authorized to expend the money.

Comparing Our Roads with India's

BUFFALO, N. Y., May 27—In the opinion of F. R. Humpage, president of the E. R. Thomas Motor Car Company, the problems met with in the construction of automobiles may be simplified 20 per cent. by the general building of roads in the United States along lines that obtain in the older countries.

"While we build cars for the worst roads and test them on the poorest excuses for highways in the country," says Mr. Humpage, "would it not be a more satisfactory condition of affairs if the maker of automobiles in the United States could build cars for highways with such surfaces as the roads have in the highways of the old world?"

"With concrete surfaces made on old foundations prepared for the facing, why could not we have roads like those of India? Between Calcutta and Bombay centuries of traffic have not caused deterioration. This highway practically is in perfect condition today. For 1,000 miles out of Singapore and for 1,500 miles out of Batavia, Java, the roads I have traversed have surfaces almost as perfect as hard-wood floors. They are like concrete sidewalks, in short."

Parade as Convention Feature

POCATELLO, IDAHO, May 24—A parade from this city to Logan, Utah, will be given during the third annual convention of the Intermountain Good Roads Association to be held at the latter city June 11 to 13. The parade will be under the auspices of the Idaho State Automobile Association and President Theodore Turner, who is also President of the Bannock County Automobile Club, will have the supervision of the event.

It is the tentative plan to route the parade from Pocatello, via McCammon, Bancroft, Soda Springs, Georgetown, Montpelier, St. Charles, Paris, Bear Lake and thence down the beautiful Logan canyon to the convention city. Returning it is probable the trip will be made either via Cache Junction, Malad, Downey or Preston, Dayton, Downey and McCammon to the starting point.

Monterey's Strict Motor Law

MONTEREY, MEXICO, May 25—All the larger cities of Mexico adopted ordinances regulating the operation of motor cars. In this city an ordinance of this character is being rigidly enforced by direction of Mayor Alfredo Perez. As a subject of comparison between municipal ordinances relating to motor cars in American cities it is interesting. The Monterey ordinance follows:

Article 1.—All owners of automobiles in the municipality of Monterey are required to procure a license from the city authorities for using their machines upon the streets of the city. This permit or license will cost 2 pesos for each machine. The municipal tax will range from 4 to 10 pesos per month, this tax being regulated according to the size of the machine. Motorcycle tax will be but one-fourth of the above-mentioned tax.

Article 2.—Owners or chauffeurs will be given a certificate upon complying with an examination proving that they are thoroughly capable of discharging a chauffeur's duties. A plate will also be issued bearing the license number and this plate must be placed in a visible position on the machine.

Article 3.—Upon obtaining the above permission, a book will be given to the person applying for the same, and upon the first page will be found the license with its respective number. The remaining pages in the book are blank, and these will be used for making statements concerning accidents or anything else that might lead to convicting the owner or driver of said machine. This book will be at all times carried with the machine to which it belongs, and a copy of the same will be kept in the city hall of this city.

Article 4.—The speed of automobiles within the city limits shall not exceed that of 10 kilometers per hour.

Article 5.—All machines must be provided with a horn or bell, and an alarm announcing the approach of the machine will be given at all crossings, but this alarm must be of a moderate nature and not so as to frighten horses. In case an animal should become frightened by the sounds or sight of the machine, the driver of the machine is obliged to either stop his machine or change his route. This article also applies to motorcycles.

Article 6.—About parks and public places where people congregate automobiles will be required to keep the same speed as the public coaches. Motorcycles in such places are prohibited.

Article 8.—The use of intense lights with reflectors, such as searchlights is absolutely prohibited on automobiles when driven in corporate limits of the city.

Article 9.—For automobiles entering the Alameda Porfirio Diaz, it will be necessary to obtain a special permit from the proper authorities and furnish bond of \$500, and this bond, in case an accident occurs through the fault of the person driving the machine, will be forfeited and used as a fine.

Article 10.—The automobiles which will be permitted to enter the Alameda must, besides carrying the license number of machine, be provided with the letter "A," which must be stamped on the license number plate.

Article 11.—The police are authorized to arrest any one who fails to comply with the above-stated articles, and the mayor of the city will have the authority to punish the person or party which is found guilty of violating all or any part of the above by imposing a fine ranging from \$5 to \$100 or as much as one month's imprisonment for each and every offense. In the rules and regulations governing automobiles in the Alameda, the fine will be larger.

No Detours Around Road Operations

BUFFALO, N. Y., May 27.—The Automobile Club of Buffalo, through its secretary, Dai H. Lewis, is thoroughly disgusted with the apparent neglect of the State Highway Commission in the matter of keeping up detours around roads under construction near Buffalo. The law recently passed making imperative the posting of signs at roads which are closed or under repairs is being violated and there is a lack of temporary roads for the travel of motorists. In past years the law has been violated, but inasmuch as the legislature recently passed an ordinance covering this matter Secretary Lewis will investigate in an effort to have signs erected and detours kept in good shape until new roads are completed.

New T. C. A. Offices in Utica, N. Y.

UTICA, N. Y., May 27.—The Touring Club of America opened an office in the Arcade Building last week for the purpose of promoting touring interests in this section of New York State. This club will be well informed during the touring season for automobiles concerning new or closed roads, routes and detours, hotel and garage accommodations, maps, speed ordinances and weather reports. The club is also erecting road signs, and supplies to its members cards of introduction at golf and country clubs all the way. De Lancey P. White, of Utica, will act as local representative for the organization, which is establishing about twenty-five new route stations located along the main highways traveled by tourists.

TEGUCIGALPA, HONDURAS, May 18.—By carrying out a program of road improvement, which has just been announced by the Department of Public Works, automobiles soon can be used to much greater advantage here. A road is to be built from San Lorenzo to the capital and the old highway connecting Tegucigalpa with Comayagua is to be transformed into a boulevard. A new road also is to be built to Olancho. Orders for steam rollers and complete road building equipment were placed in the United States some time ago and it is expected to arrive soon.

DALLAS, May 23.—A national highway, particularly for automobile tourists and extending from Winnipeg, Canada, to Galveston, Texas, via Fort Worth and Dallas, may eventually be built, according to Major T. H. Jackson, of the War Department Engineers office in this city. Major Jackson has asked for information concerning the building of such a road.

Ocean-to-Ocean Highway

Arizona Takes Initial Step in Task of Building Its Portion of Great Transcontinental Road

Highway Between Chicago and Milwaukee to be Surfaced with Gravel

PHOENIX, ARIZ., May 22.—Under the direction of Dell M. Potter, national organizer for the Ocean-to-Ocean Highway Association, the first Arizona division of that body was organized in Phoenix last evening. Other divisions are to be organized in Globe, Safford, Solomonsville and Morenci, Ariz., all of which are on the route selected for the proposed transcontinental auto road when the Ocean-to-Ocean Highway Association was organized in this city last December.

Mr. Potter, whose home is in Clifton, Ariz., is traveling from Los Angeles to New York with the Los Angeles Times transcontinental pathfinding car. While the pathfinders were touring through California the people of that state raised \$10,000 for immediate work on their end of the national highway. Yuma, just across the Arizona border, raised \$1,000 more to be expended between that place and Los Angeles. At present seventeen teams and twice as many men are making the road passable in the Mammoth Wash section, between Yuma and Brawley. This is the most difficult stretch of sand on the entire route. It is 3 1-2 miles in width and it takes an ordinary car 4 or 5 hours to plow across it.

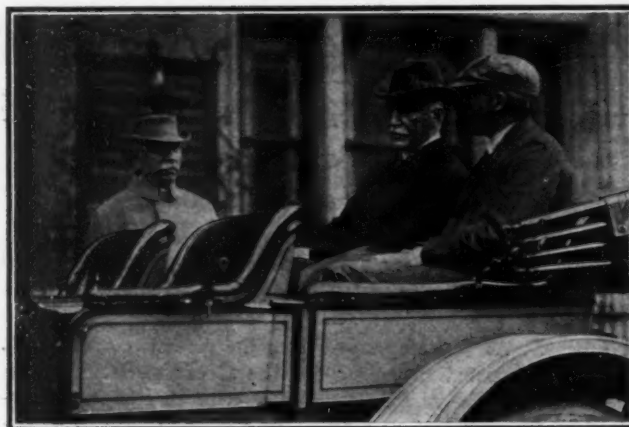
The purpose of the trip is to line up the people of California, Arizona, New Mexico, Colorado, Kansas, Missouri, Illinois, Indiana, Ohio, Pennsylvania and New Jersey, through which the route passes, and get them all to working for federal aid in building the transcontinental highway. It is believed that when those states are demanding Government assistance for the national highway it will be given by Congress.

Divisions of the Highway Association are to be organized in every important city and town through which the car passes. It is expected that July will be well advanced before New York is reached.

Chicago-Milwaukee Road of Gravel

MILWAUKEE, WIS., May 27.—The Chicago-Milwaukee Good Roads Association, which purposes to improve and maintain one good main-traveled highway between Chicago and Milwaukee, has decided to prepare a gravel roadbed and surfacing instead of the more expensive and none the more utilitarian macadam. Work on the actual improvement of the road was started to-day. The association has purchased a 10-ton tractor, a grader, scarifier and other equipment. The road will be graded a uniform width of 24 feet, with a graveled roadbed of 9 1-2 feet. Every farmer living along the route has promised to co-operate.

HARRISBURG, PA., May 27.—State Highway Commissioner E. M. Bigelow was in Gettysburg, Waynesboro and Chambersburg this week to hurry along the work of the proposed highway from Pittsburg to Gettysburg in view of the near approach of the fiftieth anniversary of the battle. The original plan provided that the road should follow the Chambersburg and Bedford turnpike to Chambersburg. Now it is claimed the turnpike company wants too high a figure for the road and some other route will have to be taken, likely by way of Waynesboro and Fairfield, unless the turnpike company yields. The commissioner stated that it was up to him to get a good highway from Pittsburg to Gettysburg this year in order to be ready for the anniversary exercises at Gettysburg in July, 1913.



Left to right—H. M. Swetland, Chief Magistrate McAdoo, Lord Montagu



Party of officials and newspaper men before the start of the Long Island trip

Honoring Lord Montagu

Distinguished English Editor and Sportsman the Guest of Gotham Officials and Trade Newspaper Men

Visitor Much Impressed With Roads Work of the Touring Club of America

LORD MONTAGU of Beaulieu, editor and publisher of the English motoring paper, *The Car*, is paying this country a visit. Distinguished foreign visitors to American shores are generally kept busy if their stay is to any extent limited, and Lord Montagu has been no exception to this rule. In following out his purpose of studying motoring conditions in this country much ground has been covered since his arrival on the Mauretania May 17, and a keen insight into road and traffic conditions in and around New York City has already been gained. The views of the noted guest on matters pertaining to the automobile industry should be keenly appreciated, coming as they do from a man who stands pre-eminent in his own country as one who has popularized the automobile. In Parliament Lord Montagu represents the motorists' interests. He is a noted tourist, personally driving his car in practically all the big European tours, and is also publisher of the *Royal Automobile Club Journal*, automobile correspondent for the *London Times* and *Daily Mail* and vice-president of the Aero Club of Great Britain.

The day following Lord Montagu's arrival a luncheon was tendered him at the Engineers' Club by Horace M. Swetland, which was attended by men of prominence in city and automobile affairs. This luncheon afforded Lord Montagu an opportunity to become personally acquainted with many of the leaders of the automobile industry in America who in their turn were delighted to welcome the visitor. Many invitations to visit their plants were extended by prominent car makers.

English No Longer Speed Mad

In introducing Lord Montagu, Toastmaster Swetland said:

"In a democratic country you must not expect its people to be seriously impressed by honorable titles, but rather expect that the personality of the man will demand such recognition as he deserves.

"You represent a great country. We admire your institutions, your government, your traditions, and we claim a kinship to your institutions, your traditions and yourself. After your visit to our country we trust you will not despise the relationship.

"You will find we have our peculiarities. The humor of one President chasing another around the country, making speeches

and calling one another household names, will appeal to you, but our great men are not in politics. Our great men are those who do things—build railroads, skyscrapers and automobiles.

"Look at our great and growing country! How did it happen? Every time you see a great achievement you will find a great man back of it. The greatness of your own country is evidence of the greatness of your people."

The guest of the occasion responded in fitting terms, enlarging, among other things, upon the fact that English makers are devoting little attention to racing and giving as a reason therefor that the average Englishman asks for service from his car rather than speed. The question of comfort appeals to the British buyer far more than that of speed. The changed aspect of New York City since Lord Montagu's last visit 24 years ago was also touched upon.

During the week Lord Montagu had an excellent opportunity to study road conditions around New York, and on Saturday last a trip was made on Long Island. The route chosen included a large part of the Vanderbilt Motor Parkway, in which Lord Montagu was particularly interested. After the run, which started from the office of the Touring Club of America, the party gathered at the Garden City Hotel, where supper was served. In order to keep an engagement Lord Montagu was compelled to leave the party early and was therefore unable to dwell at any length upon his impressions of this country as gathered so far.

Montagu Interested in Roads

After Mr. Swetland, who was the host of the occasion, had made a few introductory remarks drawing attention to Lord Montagu's activity in the automobile and kindred industries abroad, the latter expressed his thanks for the hospitality he had encountered in this country. He evidenced great interest in American road building. In commenting on the road situation Lord Montagu said that he had been much interested in the Motor Parkway, but was to a greater extent interested in the public roads. He stated that road building in this country seemed to be conducted along the right lines in that the foundation of the road was carefully laid before spending a large amount of money on the surface. Along the same lines his lordship made favorable comments on the dustproofing of the roads, stating that the ultimate road would be dustless. Many of the New York City streets, however, were far from meeting his approval.

State Commissioner of Highways C. Gordon Reel was next called upon by Toastmaster Elliott to explain the policy of the state in connection with the good roads movement. The conditions may be well shown by Commissioner Reel's remark to the effect that the difficulty was not in getting the appropriations but in spending them. Following this was an interesting talk on the problem of the policeman in connection with the traffic problem by Chief City Magistrate McAdoo, who was at one time

Police Commissioner of New York City. Interesting addresses on the establishment of a satisfactory speed law for the metropolis were given by Aldermen Ralph Folks and Samuel Marks.

Lord Montagu intends making a trip through the country during the month of June. He will include Detroit and other automobile manufacturing centers in his itinerary so that he may get in close touch with the industry.

Foraker, in Marmon, Best Guesser

WASHINGTON, D. C., May 27—The initial sociability run for the season of the Washington Automobile Club, held last Saturday, covering a distance of 22 1-2 miles, was finished in good shape, with 70 entries, Arthur Foraker, of the Potomac Motor Car Company, driving a Marmon, winning handily. The time was 1 hour, 34 minutes and 35 seconds. He was awarded the loving cup donated by the Cook & Stoddard Company. The route was to Cabin John Bridge and back by way of Rock Creek Park. Luncheon was served at the club's quarters. Owing to the number of participants, the dust bothered the drivers not a little, but there were no accidents.

C. H. Orme, driving an Apperson, and C. A. Bentley, driving a Regal, tied for second place, their time being 1 hour, 35 minutes and 10 seconds. They will draw for second place. John Lutz, driving an Oldsmobile, won fourth honors. Others who finished within the time set by Mr. Rudolph, with the machines driven, and the prizes awarded, are given in an accompanying table. Mrs. A. F. Rohrer, driving a Ford, finished within less than three minutes of the scheduled time, and was awarded a ladies' motoring bonnet by Reed's Motor Supply Company. The next outing of the Washington club scheduled is a 3-day endurance run of 500 miles to take place June 11, 12 and 13. The run will be to Philadelphia by way of Harrisburg, and back to Washington.

Lippincott Jersey's Motor Chief

Job H. Lippincott is the new Motor Vehicle Commissioner of New Jersey, succeeding J. B. R. Smith in that office. Mr. Smith took such a radical position with regard to reciprocity that he came in conflict with a considerable element among the automobilists and monopolized the storm center in several of the legislative fights.

Mr. Lippincott is popular with the motorists and under the new law his appointment will probably result in more touring than was expected.

New Canadian Tire Company

WELLAND, ONT., May 27—The Cataract Rubber Company, Limited, has been incorporated with a capital stock of \$250,000 and will locate its factory in this town. The provisional directors are E. J. M. Block, and Jacob Dilcher, both of Buffalo, and Myrtle A. Overholt, Col. L. C. Raymond and L. B. Spencer, of Welland.

Motor Bills in District

Past Week Saw Several Measures of Interest to Automobilists Introduced in the House

\$25,000 for Road in National Forest—To Repeal Wheel Tax—Penalty for Car Stealing

WASHINGTON, D. C., May 27—Bills of interest to motorists continue to be introduced in the House of Representatives, among them being one by Mr. Warburton providing for an appropriation of \$25,000 for the construction of a wagon road through the Olympic National Forest, in the state of Washington. The Secretary of the Interior is authorized to expend the money.

Representative Ben Johnson, of the District of Columbia committee, has had his bill changing the legal code for the District so that the penalty for taking an automobile, or any motor machine, without the consent of the owner is fixed at 10 years in the penitentiary, favorably reported.

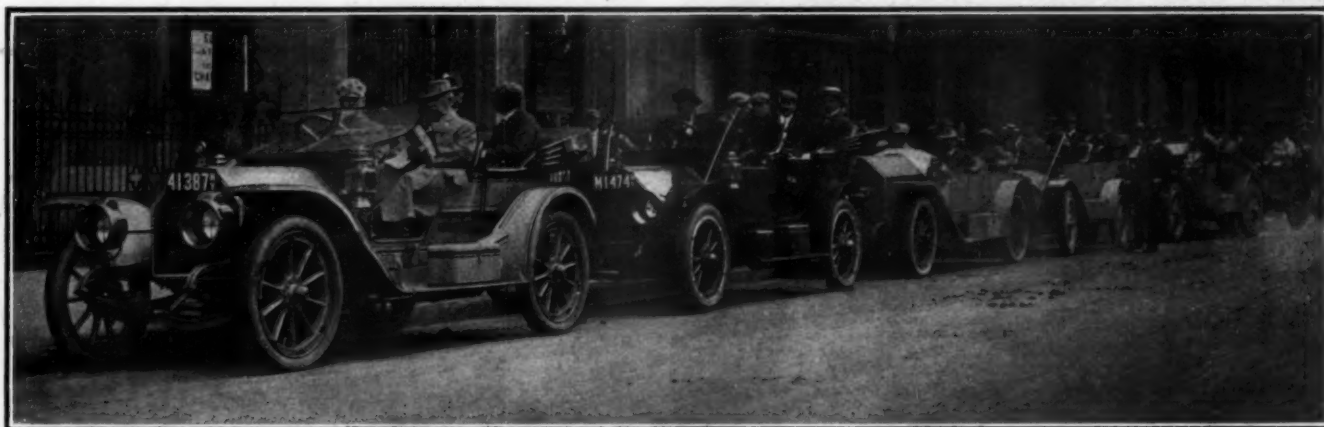
Representative Smith, of Maryland, has introduced a bill authorizing the District of Columbia Commissioners to acquire a site at or near the intersection of Grant road and Connecticut avenue, Northwest, and cause to be erected thereon a suitable engine house, and to purchase an automobile chemical fire engine and hose reel. An appropriation of \$45,000 is made by the bill with which to carry out these provisions.

Senator Smith, of Arizona, has fathered a bill appropriating \$100,000 to be expended by the Secretary of the Interior in constructing steel and concrete bridges, with suitable approaches, across the Gila and San Carlos rivers on the White Mountain or San Carlos Indian reservation, in the State of Arizona.

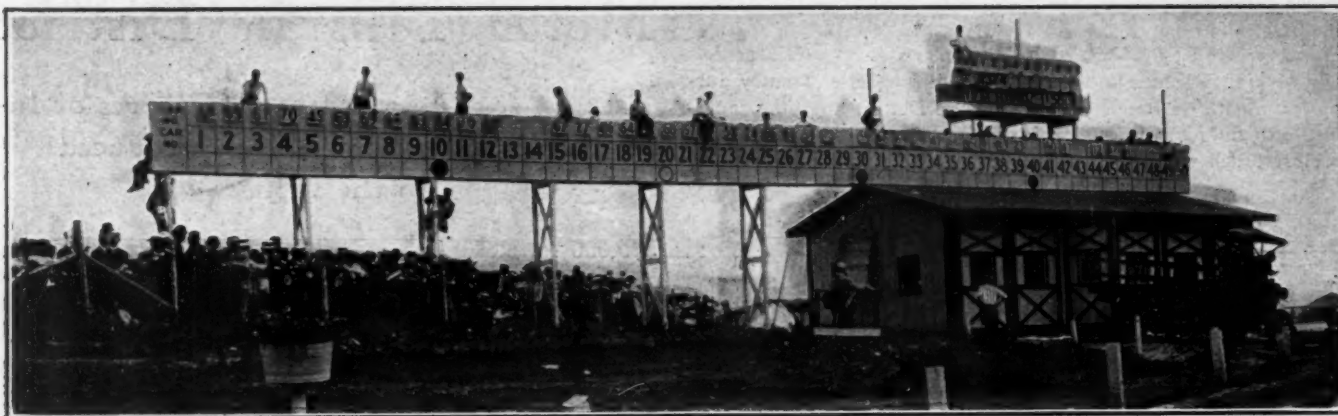
Another bill by Representative Johnson provides for the repeal of a part of the wheel tax in the District of Columbia with the proviso that nothing in the Act shall be construed to prevent the collection of unpaid taxes for the year ending May 18, 1913, under any provision of the law repealed.

The motorists of Washington have been fighting the wheel tax vigorously in the courts. It is believed that Mr. Johnson's measure will be passed. The law provides a tax on all automobiles or other motor vehicles owned and operated in the District of Columbia of \$3.00 for all the machines having seats for only two persons, and on all such vehicles having seats for more than two persons an additional tax of \$2.00 for each additional seat.

SYRACUSE, N. Y., May 25—The Automobile Club of Syracuse has its route sign work in full swing and has decided to adopt a uniform style of sign and to recommend it to other clubs in this section now prosecuting this work.



Line-up of cars in front of Touring Club of America before starting on tour of Long Island



Showing the corps of scorers at work at the first running of the Indianapolis classic last year

Ready for the Word at Indianapolis

Twenty-seven of the Fastest Cars in the World Await the Starter's Signal in the 500-Mile Sweepstakes—With Clear, Cool Weather Last Year's Figures Will Probably Be Bettered

INDIANAPOLIS, IND., May 27—If the weather is cool and the day clear on Thursday, a new mark for 500 miles over a speedway will probably be established. Everything is in readiness for the second annual international sweepstakes with the exception of the technical examination, weigh-in and qualifying trials. These will be held today and tomorrow and the last day before the race will be given over to what corresponds with rest as far as the drivers are concerned.

There are twenty-seven entries, but it is quite certain that there will be at least one that will fail to report to the judges. Several others are likely to be eliminated by the requirements of the qualifying trials. Each entered car must show a full lap of the track in 2 minutes or less, which is a minimum rate of 75 miles an hour. On the face of things, all the cars are capable of such a speed, but it has been found that in actual trial cars sometimes fail to develop such velocity.

It is believed that the technical examination will not displace any of the entered cars, as special care has been shown in preparing the contestants for the race and the requirements in this respect have been well advertised.

The Motor Speedway, at a cost of \$650,000, has substituted a tunnel for the old foot-bridge just north of the pits. This will facilitate the handling of the automobiles that are parked in the infield and the vast crowds that will view the race from this en-

closure. The tunnel is just north of the wire at the north end of the paddock box stand. It will admit the passage of two cars at the same time, going in opposite directions, and also provides two passages for pedestrians elevated above the vehicle passages.

The pits at the south end where Harry Knight pushed his Westcott into the wall to escape crushing the Case mechanician, Anderson, last year, have been fitted with concrete walls like the other pits in place of the former wooden partitions.

The speedway has in every way perfected its arrangements to make safe every possible angle of the race. The track has been gone over carefully and smoothed out. The drivers will be instructed tonight at 8 o'clock, in a meeting at the Claypool Hotel by the A. A. A. officials in charge of the race, and cautioned to be vigilant at all times. An elaborate signal system for use in emergencies on the track has been worked out.

Cars Must Pass Examination

Only the cars that comply with the entry requirements in every particular will be allowed to face the starter Memorial Day morning.

Tomorrow afternoon at 1:30 o'clock the cars will begin to weigh in. This requirement is 2,000 pounds or over.

All steering knuckles, front axles, frame hangers and steering mechanism, including tie rods, will be subject to the approval of



Marquette, McFarlan



Anderson, Stutz



Wilcox, National



Jenkins, White



Matson, Lozier



Horan, Lozier



Dingley, Simplex



De Palma, Mercedes



Tetzlaff, Fiat



Knight, Lexington

Howard Coffin, famous as engineer and builder of the Hudson car and the mechanical engineer of the speedway. These details prove to the layman that the first race demonstrated to the speedway and the motor car designers and builders the necessity of the precautions in running a race of such a distance.

Not only will the race for 500 miles be the longest track event in 1912, but it will also offer the largest amount of cash to the drivers—\$50,000 is offered.

The winner will receive for his probably 6 1-2 hours' exertion, the sum of \$20,000, while Ray Harroun, the winner of the first race, drew down \$10,000. In addition to this amount of cash offered by the speedway the various accessory manufacturers interested in the race have offered cash. The following amounts will be given to the next eleven drivers in the order that they finish: \$10,000; \$5,000; \$3,000; \$2,500; \$2,000; \$1,500, \$1,400; \$1,300 \$1,200, \$1,100, and \$1,000.

A Word as to the Drivers

Among the drivers and relief drivers named for the twenty-seven entrants, seven drivers and seven relief pilots will ride in their first 500-mile event. The drivers that were not participants in the first five-century gasoline marathon are: Bert Dingley, Bill Liesaw, Joe Horan, Len Ormsby, Charles Shambaugh and H. J. Kilpatrick. The relief pilots to make their bow in the 500-mile event are "Big Boy" Rader, Johnson, Swanson, Fuller, Farr, Kittrell, and Fowler.

Teddy Tetzlaff, now holder of the world's road racing record with an average of 78.50 miles per hour, made at Santa Monica, May 4, will drive a Fiat, the same make of car with which he won his laurels. Last year he had a Lozier mount. Ralph DePalma finished sixth in the first event in a Simplex and this year will be probably the individual favorite driving a big gray Mercedes.

Gil Anderson will again drive a Stutz and will have as teammates Charley Merz, famous as a National pilot, and Len Zengel, winner of the 1911 Elgin, at the wheel of a National. In the first race both Zengel and Merz appeared at the wheels of Nationals. Louis Disbrow and Edward Hearne will drive the

two Case entries. Disbrow drove the Pope-Hummer last season.

Spencer Wishart, the New York millionaire, who won fourth place in the initial race, will drive the same Mercedes. Harry Knight, driver of the Westcott that he wrecked in the first event, will appear at the wheel of a Lexington. This will be the initial bow of the Lexington in speedway racing.

The National team will present a new front. Howard Wilcox will again drive a 50-horsepower, the same size National that he finished in seventeenth place with in the first event. David Bruce-Brown, twice winner of the Grand Prize of America, will drive a second National fifty. Bruce-Brown finished third in a Fiat last year. Joe Dawson, winner of fifth place in the first race at the wheel of a Marmon, will round out the National's team. Truly, one of the most formidable trios that ever grasped the steering wheel of a rubber-shod, gasoline-devouring speed monster. Bruce-Brown is for the first time driving an American-made machine.

Bert Dingley, famous for his work with a Pope on the Pacific coast and participant in former Vanderbilts, will make his bow in a Simplex.

Johnny Jenkins, former pugilist and famous as a Cole driver, will mark the return of the White to the racing arena. The last appearance of the Cleveland machine in the speed lists was with the White Steamer.

Bob Burman, "Speed King," will drive a Cutting in the event. Burman held the wheel of one of the Benz entries in the first event.

Lee Frayer, who finished thirteenth in the Firestone-Columbus in the 1911 event, will drive the same mount.

Billy Liesaw, at the wheel of the Marquette-Buick, is a new face among the five-hundred milers.

Old "Farmer Bill" Endicott, with a penchant for green and famous as a pilot of Cole cars, has transferred his affection to racy-appearing Schacht, of vermilion hue.

Mel Marquette, driver of the McFarlan six in the first event, will have a mount of the same make.

Ralph Mulford, the laughing youth that made the name Lozier



Liesaw, Marquette-Buick



Merz, Stutz



Endicott, Schacht



Herr, National



Zengel, Stutz



Disbrow, Case

Mulford, Knox

Herrick, Case

Frayer, Firestone-Columbus

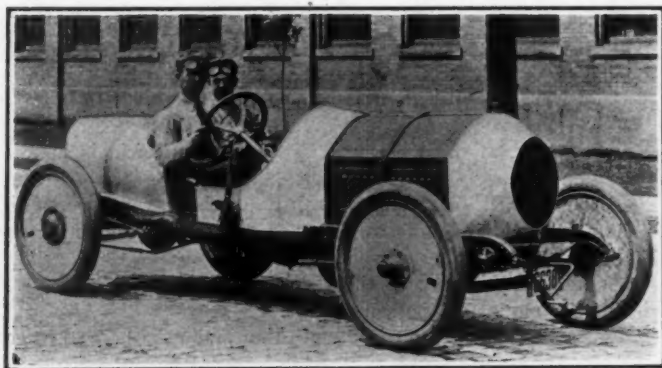
Hearne, Case

synonymous, with speed, will, for the first time in his long career, appear at the wheel of another make. Mulford will drive a Knox Six. He promises to be a strong contender and the Knox Four, driven by Belcher last year in the race, had a world of speed. Mulford finished second in the first event, driving a Lozier, one minute and forty-three seconds behind Harroun.

Hughie Hughes, winner of many events in his class in Mercers, has one of the most formidable speedsters at the track. Hughes finished twelfth last year in a Mercer. Len Ormsby will drive an Opel, a famous German car, in his speedway debut. Shambaugh, of Lafayette, Ind., is a newcomer. He has built a special car for the event, but is still doubtful if he will be ready in time.

Joe Matson and Joe Horan will drive Lozier cars. Horan was under contract to drive an Amplex in the first event, but an accident before the race prevented his appearance. Matson was a relief driver on the Fiat team in the first event. Kilpatrick, driver of the Mason, is also making his bow. Kilpatrick is known to the racing fans by his work at the wheel of the Hotchkiss car on the mile tracks in former years.

Among the relief drivers, five of them had mounts, in the 1911 race. Knipper, relief pilot for the Stutz trio, drove a Benz, teaming with Burman. Bragg, relief pilot to Tetzlaff, had a Fiat mount. Rupert Jeffkins, relief to DePalma, had a Velie entry in 1911. Harry Endicott, relief to Farmer Bill of



Farmer Bill Endicott in the Schacht

the Schacht, drove the Inter-State in the original event. Don Herr, relief for the National trio, won his first race at Elgin last year, winning the 301 to 450 event with a National and was a relief pilot in the first five-century test.

If the weather is cool, the breaking of Ray Harroun's average of 74.61 miles an hour will be possible, but if it is torrid July weather on Memorial Day, the breaking of the record will be a task.

To break Harroun's time of 6:42:08 the car must average 75 miles an hour or complete the race in six hours and forty minutes, or two minutes to the lap. To do 78 miles an hour the cars must average 1:55:4 per lap or cover the 500-mile course in 6:24:40.

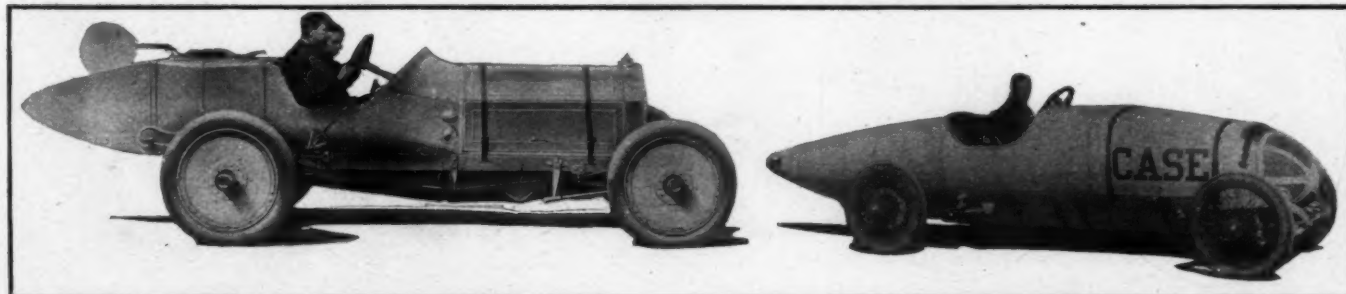
Six Sixes and Twenty-one Fours

However, the cars are built for speed, as indicated by their size and lines of design. There will be six cars in the six-cylinder class if all the entrants qualify, and twenty-one four-cylinders. In the 500-inch division of the race there are ten cars, in the 400 class eight, in the 300 class seven, and two in the 200-inch piston displacement. "Speed King" Burman has the car with the largest piston displacement, his Cutting mount measuring 597.9 cubic inches. Kilpatrick, with the Mason, is the diminutive entry, having a piston displacement of 243.5 cubic inches.

The nomenclature of the officials selected by the Indianapolis Motor Speedway embodies the names of several of the most prominent men in the automobile game. R. P. Hooper, president of the American Automobile Association, will be honorary referee. A. D. Pardington will be referee. Fred J. Wagner will again start the cars and wave the green and checkered flags.

While Ray Harroun, winner of the original 500-mile grind, will not sit behind a brass steering column and watch the bricks seemingly glide rapidly under him, he will be a part of the race as he is assistant to Wagner as starter. Harroun will help line the cars up and send the boys away in their effort to smash the record he made last year when he sent the Marmon Wasp darting around the course at over 74 miles an hour.

John S. Cox, director of scorers in the first race, will again occupy the same position, and the checking in of the winner and the cars in the money will rest with this man. William Schimpf



The Cutting, with Bob Burman at the wheel

Hearne will replace Herrick in Case, No. 6



Wishart, Mercedes

Bragg, Fiat

Hughes, Mercer

Bruce-Brown, National

Burman, Cutting

of New York, chairman of the contest board of the A. A. A., will be on the grounds and he will be assisted by C. W. Sedwick, Indianapolis representative of the A. A. A.

The cars are not the only feature of interest to the world in considering a race of this magnitude. Special trains from many points will be run to Indianapolis for the event. The hotels of the Hoosier capital have not been able, with all their facilities, to take care of the crowds, and the citizens have thrown open their homes through the room bureau of the speedway, and there will be accommodations for all that come to the race.

Another feature will be the crowd. This event will probably attract the fans far in excess of the number that witnessed the original event. The first race drew more people to the track than ever before witnessed a sporting event. But they were different in class. The crowd at the speedway event will be cosmopolitan. Millions will be represented and the executives of the motor car factories of the country, whether directly interested in racing or not, will watch the contest from the stands. Special trains will be run over the Big Four and C., H. & D. systems in addition to the traction facilities for transporting the large crowds to the track. Many of the visitors to the race will come in their motor cars and the speedway has facilities to park 10,000 automobiles.

Shambaugh a Rebuilt Buick

There is no longer any mystery connected with entry No. 26 in the Memorial Day race at the Indianapolis Motor Speedway. The car is a reconstructed Buick, entered by a private owner, Charles Shambaugh, of Lafayette, Ind. Shambaugh has been working on a racing car for several months. In appearance the car looks like one of the model 16 Buick racing cars. The cylinders, cams and radiator were taken from a model 17, the rear axle from a model 16 racing car and the valve levers and brackets from a model 26. He made many patterns and constructed many of the parts in his own machine shop at Lafayette.

Harvey Herrick will not pilot a car in the 500-mile race at the speedway next Thursday. According to a telegram received from Herrick to-day by M. C. Meigs, the representative of the Case factory who is directing the Case camp, the strenuous objections of Mrs. Herrick will prevent the holder of the world's road-race championship appearing on the brick oval as scheduled. His withdrawal puts Eddie Hearne, slated as Herrick's

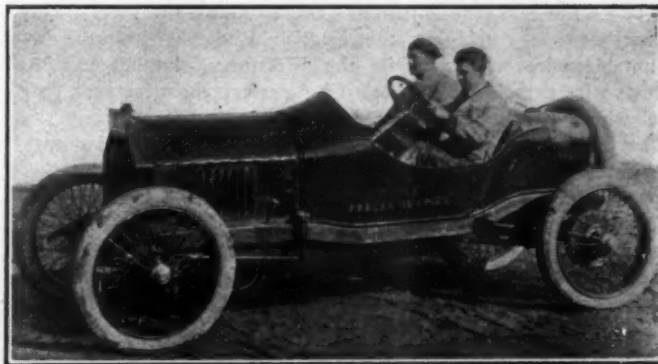
relief, as chief pilot of one Case entry, Louis Disbrow driving the other.

In discussing the race here to-day H. A. Lozier, president of the Lozier Motor Company, denied emphatically the rumor that the Lozier cars entered at Indianapolis have the backing of his company. "The two Lozier cars appearing among the entries in the Indianapolis race are obsolete 4-cylinder models no longer manufactured by us and are the property of private individuals. These cars have been entered by the owners against our advice and with the understanding that it is out of the question for us to give them assistance in any way.

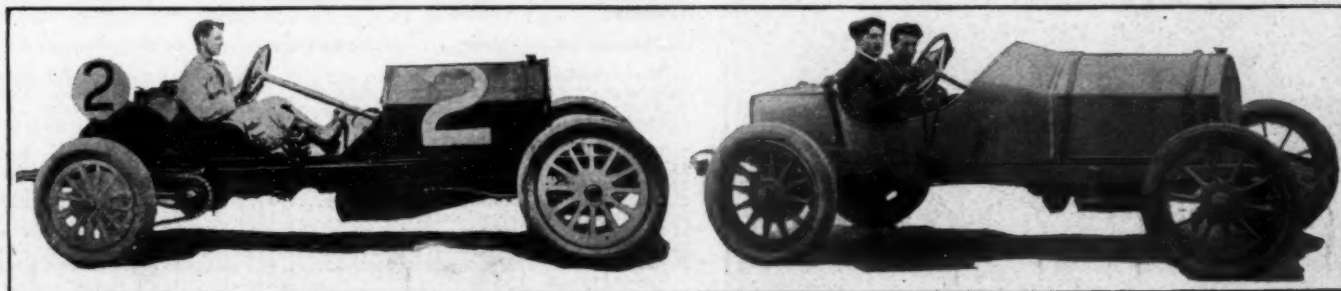
"A short time after the Lozier won the Vanderbilt Cup Race at Savannah last November we decided to withdraw from racing entirely, and to lend assistance to these private owners who have entered cars at Indianapolis would not be consistent with the policy we have adopted.

"Since we have withdrawn from racing many of our owners have asked our advice about entering cars in the big contest, and in all cases we have tried to discourage them, because we realize that they are competing against trained crews of men who have made a study of speed contests.

"Furthermore, the big race at Indianapolis is really a free-for-all, the only limitation being a motor having a cylinder displacement of 600 inches or less. This makes it possible for the specially built racing machines to secure a great advantage over the stock car stripped for racing.

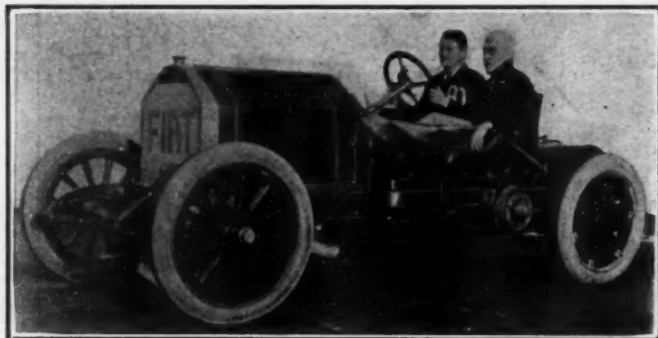


Lee Frayer and the Firestone Columbus



Dingley in the Simplex—a fast combination

Stutz, No. 1, driven by Gil Anderson



It will take a lot to beat Tetzlaff and the Fiat

"Because of the fact that the Lozier has been quite prominent in most of the great long distance speed contests during the past few years the public will undoubtedly have the impression that the conditions are the same as when we maintained a Racing Department. A certain number of people will probably wager on the result of the contest, and we feel that the public is entitled to know the conditions under which the Lozier car will start in the Indianapolis race. As makers of the car we can assume no responsibility for the performance of the cars in the hands of individual owners in a contest of this sort."

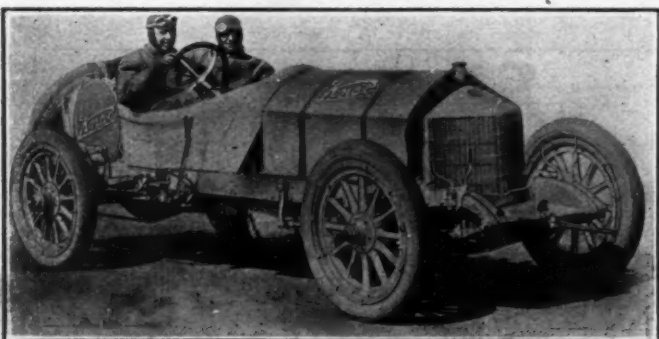
In addition to the previously announced prize list the following purse has been donated:

Following its usual custom prior to the running of big motor-ing events the Emil Grossman Company, of New York City, is offering an unusually large purse to the already princely list of prizes for the 500-mile race at Indianapolis on Memorial Day. The sum of \$1,000 will be given to the winner, \$250 to the second best and \$100 to the third, provided the drivers who finish in these positions have their cars equipped with spark plugs made by the Grossman company.

A Try-Out for Wire Wheels

One of the most important questions to be decided by the race is the effect of wire wheels. These wheels will have their first real test in America on that day. Among those cars which are fitted with wire wheels are the Hughes Mercer, the two Case cars, the Firestone-Columbus and the Opel. The first three are employing the English Rudge-Whitworth demountable wire wheels, while the Firestone-Columbus carries McCue wire demountable wheels of American manufacture. The Opel wheels are not demountable.

That the use of wire wheels will materially increase the running time of the cars so fitted is the belief of many about the camps. The adherents of this type of wheel hold that greater mileage can be obtained from the tires on wire wheels; Hughes figures on a 40 per cent. increase in life over those on wood wheels. This is credited to two causes, first, that the metal spokes conduct the heat away from the tires more rapidly and second, that the greater resilience of the metal spokes will decrease the actual wear on the treads. The fact that the wheels



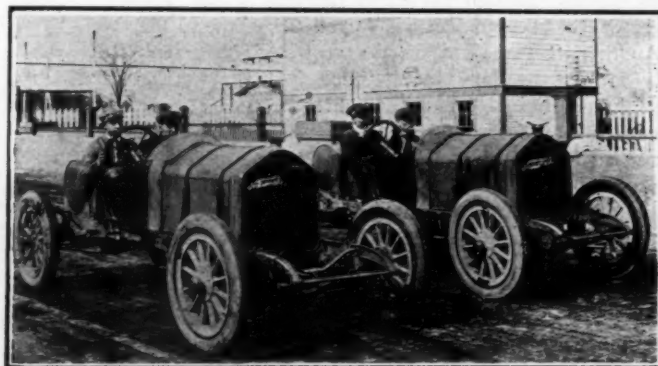
Mulford has transferred his affections to the Knox

are demountable is believed to make tire changes quicker, an entire wheel being changed instead of the rim alone. Less danger is apprehended of broken wheels as well as from skidding; in fact, Nikrent lays his escape from a dangerous accident on Thursday to the use of wire wheels. The Case car skidded into the grass when taking a turn at almost 80 miles an hour, at the point where Greiner turned over in last year's race.

Wooden Spokes Covered with Metal

Several of the cars have wooden spokes covered with sheet metal disks to reduce the air resistance. These were at first put on all four wheels, but most of the drivers found that the shields on the front made the car hard to steer and it is probable that nearly all will appear with the guards on the rear wheels only. Among the cars so equipped are the Schacht, White, Cutting, Knox and Lexington.

A feature of the construction of the racing cars is the prevalence of stream-line bodies with the narrow radiator and tapering tail. This design was one of the distinguishing points of Harroun's Marmon that won last year's race. The Mercer, the Cutting the McFarlan, the Schacht have this type of body, while the two Cases are not equipped with it in favor of lightness. The



Two of National trio—Herr and Wilcox driving

MECHANICAL DETAILS OF THE CARS THAT WILL CONTEST

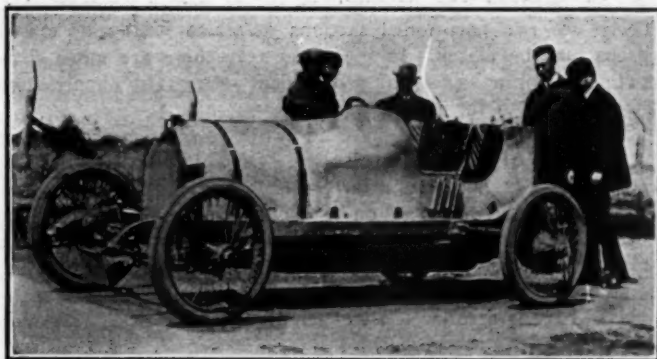
No.	Car	Driver	Relief	No. Cylinders	Bore, inches	Stroke, inches	Piston Displacement, cu. in.	H. P. S. A. E.	Tires	Cylinder, How Cast	Valve Location
1	Stutz	Anderson	Knipper	4	4 1/2	5 1/2	389.9	36	Michelin	Pairs	Opposite
2	Stutz	Zengel	Knipper	4	4 1/2	5 1/2	389.9	36	Michelin	Pairs	Opposite
3	Fiat	Tetzlaff	Bragg	4	5	7 1/2	589.0	40	Miller	Pairs	Head...
4	Mercedes	DePalma	Jeffkins	4	5 1/2	7 1/2	595.0	43	Michelin	Pairs	Head...
5	Case	Disbrow	Hearne	6	4 1/2	5 1/2	447.8	42	Palmer	Pairs	Side....
6	Case	Herrick	Hearne	6	4 1/2	5 1/2	447.8	42	Palmer	Pairs	Side....
7	Mercedes	Wishart		4	5 1/2	7 1/2	583.0	42	Michelin	Pairs	Head...
8	National	Dawson	Herr	4	5 1/2	7 1/2	490.8	40	Michelin	Pairs	Si. & Hd.
9	National	Wilcox	Rader	4	5 1/2	7 1/2	589.0	40	Michelin	Pairs	Si. & Hd.
10	Lexington	Knight	Johnson	6	4 1/2	5 1/2	421.0	41	Michelin	Separ	Side....
12	Simplex	Dingley	Swanson	4	5 1/2	5 1/2	597.0	53	Michelin	Pairs	Opposite
14	White	Jenkins	Fuller	6	4 1/2	5 1/2	489.0	43	Michelin	Block	Side....
15	Cutting	Burman		4	5 1/2	7 1/2	597.9	43	Firestone	Pairs	Opposite
16	Firestone Col.	Prayer	Rickenbacher	4	5	5 1/2	432.0	40	Firestone	Pairs	Side....
17	Marquette-Buick	Liesaw	Farr	4	4 1/2	5	318.0	32	Michelin	Pairs	Head...
18	Schacht	Wm. Endicott	H. Endicott	4	4 1/2	5 1/2	389.9	36	Michelin	Pairs	Opposite
19	Knox	Mulford		6	4.8	5 1/2	597.0	55	Michelin	Head	Head...
21	Mercer	Hughes	Kitsell	4	4 1/2	5	300.0	31	Michelin	Pairs	Opposite
22	Lozier	Horan	Ainslie	4	5 1/2	6	544.0	46	Michelin	Pairs	Head...
23	McFarlan	Marquette	Powder	6	4 1/2	5	425.0	43	Michelin	Pairs	Head...
24	Opel	Ormsby		4	4 1/2	6 1/2	437.0	32	Michelin	Pairs	Head...
25	Lozier	Matson		4	5 1/2	6	544.0	46	Michelin	Pairs	Head...
26	Shambaugh	Shambaugh		4	4 1/2	5	318.0	32			
27	Continental	Romine		4	4 1/2	4 1/2	255.0	29	Michelin	Block	Side....
28	Stutz	Merr	Knipper	4	4 1/2	5 1/2	389.9	36	Michelin	Pairs	Opposite
29	National	Bryce Brown	Herr	4	5	7 1/2	589.0	40	Michelin	Pairs	Si. & Hd.
31	Mason	Kilpatrick or Oldfield		4	3 1/2	5	243.5	25	Michelin	Block	Head....

Mercer is fitted with a smooth pan enclosing the entire bottom of the body.

Locking the differential gears for the race is a subject of much discussion about the camps. It is held by those who favor the move that it results in a distinct saving in tires. The reason for this claim is that with the differential in operation, the driving wheel that is off the track, as one of them is a good part of the time, revolves at a very high rate of speed. When it comes back to the ground the friction on the pavement wears off the tread very rapidly, causing excessive heat. At the same time, it is claimed, the wheel on the ground which is actually supplying traction is turning slower than it would otherwise, owing to the action of the differential gear. Among the racers using no differential action are the White, the two Cases and the Firestone-Columbus.

All But One Qualified First Day

In the elimination trials on the speedway today for the 500-mile race on Thursday, twenty-one of the twenty-two cars that attempted the 75-miles-an-hour pace qualified, the only one to fall by the wayside being Continental No. 27. Trials will be continued from 10 until 12 noon, Tuesday. Mulford had to wait for new wheels, and one of the Cases and the Opel failed



Mercer, No. 21, the mount of Hughie Hughes



Mason, No. 31, smallest car in the race

to appear. The Schambaugh has officially withdrawn from the race. It had been considered hardly possible that this car would be ready in time.

Of those to qualify Bruce-Brown carried off premier honors by sending his National around the 2 1-2-mile track at 88.5 miles per hour. Closely following was Wilcox in another National, who reached 87 miles an hour, and Dawson in the third National and DePalma in Mercedes, No. 4, tied at 86.

The table of elimination times follows:

No.	Car	Driver	Time	Speed, M.P.H.
1	Stutz	Anderson	1:51:20	81
2	Stutz	Zengle	1:54:14	78.5
3	Fiat	Tetzlaff	1:46:83	84.5
4	Mercedes	DePalma	1:44:62	86
5	Case	Disbrow	1:57:55	76.5
7	Mercedes	Wishart	1:47:20	84
8	National	Dawson	1:44:49	86
9	National	Wilcox	1:43:20	87
10	Lexington	Knight	1:58:54	76
12	Simplex	Dingley	1:51:21	81
14	White	Jenkins	1:51:35	81
15	Cutting	Burman	1:47:00	84
16	Fire-Col'bus	Fray	1:56:42	77
17	Marq.-Buick	Liesaw	1:56:11	77.5
18	Schacht	Endicott	1:51:70	80.5
21	Mercer	Hughes	1:50:00	81.5
22	Lozier	Horan	1:51:82	80.5
23	McFarlan	Marquette	1:53:26	79.5
25	Lozier	Matson	1:52:64	80
26	(Withdrawn)			
27	Continental	Romine	2:11:00	68.5
28	Stutz	Merz	1:55:09	78
29	National	Bruce-Brown	1:41:75	88.5

Analyzing Elimination Times

In analyzing the times made it is seen that four made over 85 miles per hour, nine went between 80 and 84 miles per hour, totaling thirteen cars that averaged over 80 miles per hour in time trials.

The Nationals as a team carried off the high averages, as the three cars averaged 87.17 miles per hour.

Of the twenty-five drivers who will start as chief pilots in this year's big race eighteen drove in last year's event, leaving only seven new men for this year.

The twenty-five cars entered in this race divide themselves into three natural divisions—one-third are speed kings, one-third are in a middle class and one-third may best be described as plug-gers. Last year's race had forty starters; this year's contest will probably have 25.



Millionaire Wishart will drive his own Mercedes

IN THE 500-MILE SWEEPSTAKES ON DECORATION DAY

Valve Location

Opposite

Opposite

Head...

Side...

Head...

Sl. & Hd.

Side...

Opposite

Side...

Head...

Opposite

Head...

Side...

Opposite

Sl. & Hd.

Head...

Valve Diameter, inches	Valve Lift, inches	Gear Ratio	Magneto	Car-buretor	Wheel Base, inches	Shock Absorber	Features
2 1/2	1 1/2	2.19:1	Splitdorf...	Schebler...	110	Hartford...	Double Distributor
2 1/2	1 1/2	2.19:1	Splitdorf...	Schebler...	110	Hartford...	Double Distributor
2 1/2	1 1/2	2.2:1	Bosch...	Fiat...	107	Hartford...	16 valves
Inlet 3 1/2, Ex. 2 (doub.)	1 1/2	1 1/2:1	Bosch...	Rayfield...	108	Mercedes...	Chain drive
Int. 3, Ex. 2	2:1	2:1	Remy...	Rayfield...	123	Gabriel...	Rudge-Whit. Wire
Int. 2, Ex. 2	2:1	2.5:1	Remy...	Rayfield...	123	Gabriel...	Wheels
Inlet 3 1/2, Ex. 2 (doub.)	1 1/2	1 1/2:1	Bosch...	Rayfield...	108	Mercedes...	Rudge-Whit. Wire
2 1/2	1 1/2	2:1	Splitdorf...	Schebler...	110	Hartford...	Wheels
3	2 1/2	2.13:1	Bosch (2)...	Schebler...	112	Hartford...	Chain Drive
2 1/2	1 1/2	2:1	Remy (2)...	Schebler...	118	Hartford...	In each Cylinder 4
1 1/2	1 1/2	2:1	Splitdorf...	Simplex...	124	Hartford...	Spark Plugs
2 1/2	1 1/2	2.2:1	Bosch...	White...	114	Hartford...	Rear Wheels Sheet
2 1/2	1 1/2	1.75:1	Remy...	White...	115	Hartford...	Steel
2 1/2	1 1/2	2:1	Remy...	Schebler...	110	Hartford...	Chain Drive
In. 1 1/2, Ex. 1 1/2	1 1/2	2.5:1	Remy...	Rayfield...	112	Hartford...	Sheet Metal Wheels
2 1/2	1 1/2	2.25:1	Splitdorf...	Schebler...	110	Hartford...	Sheet Steel Rear
1 1/2	1 1/2	2:1	Bosch...	Rayfield...	114	Mondex...	Wheels
2 1/2	1 1/2	2.5:1	Bosch...	Rayfield...	108	Hartford...	McCue Wire Wheels
2	1 1/2	2.03:1	Splitdorf...	Schebler...	124	Hartford...	Sheet Metal Wheels
2	1 1/2	2.5:1	Splitdorf...	Schebler...	115	Hartford...	Sheet Metal Wheels
2	1 1/2	2:1	Bosch...	Rayfield...	116	Hartford...	Rudge-Whit. Wire
2 1/2	1 1/2	2.3:1	Remy...	Schebler...	116	Hartford...	Wheels
2 1/2	1 1/2	2.19:1	Splitdorf...	Schebler...	110	Hartford...	Double Distributor
3	2 1/2	2:1	Bosch (2)...	Schebler...	112	Hartford...	Four Spark Plugs in
1 1/2	1 1/2	2.6:1	Splitdorf...	Schebler...	104	Hartford...	Each Cylinder

Chances for Foreign Trade

Items Culled from Consular Reports Showing Where Opportunities for Business Exist Abroad

South Americans Looking for Electrics—Want Trucks for Freight Service

ELECTRIC automobiles—An American consul in a South American country has requested to be supplied with catalogues of electric automobiles and appurtenances such as transformers, etc., together with price of same f. o. b. New York City. Several inquiries have been received, and it is possible that sales may be effected. Address all communications to the Bureau of Manufactures, Washington, D. C., File No. 8707.

AUTOMOBILE—An official in an Asiatic country informs an American consulate that he is desirous of purchasing an American automobile and would appreciate illustrated catalogues and price lists c. i. f. a certain city. Price lists should be in English or Indian currency. Correspondence may be in English. Bureau of Manufactures, Washington, D. C., File No. 8674.

AUTOMOBILE FOR THE TROPICS—A government official in a foreign country has informed an American consulate that he desires to receive particulars concerning automobiles suitable for the tropics. He particularly desires information regarding medium-priced cars. Correspondence with this official may be in English. File No. 8766.

MOTOR CARS—An American consular officer requests catalogues from the manufacturers in the United States of the very finest motor cars. These catalogues should show details of the cars, especially the interior upholstery and fittings. A car was recently purchased by a resident of his district for \$8,000, and at the present time it is the best machine in the market, but the other residents are desirous of securing a better car, and American manufacturers should take advantage of this opportunity. The price of the car will be no object. Catalogues are also desired from manufacturers of upholstered furniture. File No. 8769.

AUTOMOBILE TRUCK—A resident of a South American country has just obtained from the local government a concession to establish an automobile service. It is proposed at present to establish two lines, 36 and 15 miles long, respectively. These routes are over a level country with a hard, chalky soil and a few sand beds. The roads are very primitive. The person holding this concession would like to get bids on a type of 3-ton gasoline truck, suitable for use on the primitive roads of the country. He will probably order one or two at first and, if the experiment is successful, orders for more trucks will soon follow. Correspondence may be in English or Spanish. Prices should be quoted f. o. b. New York. File No. 8784.

Comforts of Home en Tour

(Continued from page 1213.)

compartments in the body of the basket for two covered dishes. In these, sandwiches, meats and the like may be carried. There is a special dish for butter. The measurements of the hamper are about 2 by 3 feet, while the height is about 10 inches.

A novel lunch trunk, which answers the purpose of a foot rest as well, is pictured on pages 1210 and 1211, Figs. 4 and 4, respectively. One view shows the combination closed ready for its position on the floor of the tonneau, while the other view represents it opened up. It is complete in every detail for four persons, and a closer examination will reveal cups, saucers, plates, knives, forks, spoons, jars for butter and preserves,

dishes for salads or sandwiches, napkins, tin boxes for other eatables and a Thermos bottle. In fact, nothing is forgotten in this case for thorough enjoyment of the luncheon on the road. The price is \$75.

Perhaps the most elaborate of them all is the motor restaurant, so called, which may be bought for \$125 or \$150, depending on whether it is fitted for four or six persons. The equipment is very much the same as that enumerated for the other lunch sets, but the folding features are exceptional. When the spot for the luncheon is fixed upon the restaurant may be taken from the car, opened up and made into a table, as shown in Fig. 2, page 1211. The same chest is shown in its compact folded position in Fig. 5.

In purchasing a lunch set, the position which it is to occupy in the car should not be lost sight of. A very good size—for the small touring car at least—is illustrated by Fig. 1, page 1211. When it is placed on the tonneau floor there is ample room. This set here shown is for four persons, and the case is of patent leather. Everything is included in the outfit, and the cost is about \$60. The same thing for 6 persons runs to \$67.

The motor refrigerator also commands attention. This resembles the lunch trunks and is a patent-leather-covered case, as shown in Fig. 3, page 1210. Within it there are two galvanized iron trays, one fitting above the other. The lower of the two is intended for holding ice in its center compartment. There are two partitioned sections in which bottles, or closed dishes may be placed. In the upper tray there are more compartments for a variety of self-evident uses. The supply shop asks you \$16.50 for this article.

Thermos cups and bottles should not be forgotten. They come in a variety of shapes for all uses. One of them is shown in Fig. 3, page 1211. This is a jar or bottle for ice cream or soups, and the covers which go on it are shown at the sides. The cost is \$10. A convenient arrangement of cups is also seen in this illustration. There are six cups of the same size in the combination and their positions when together are interchangeable. There is a screw top to exclude dust and dirt. This may be had for \$1.25.

Automobile trunks are in a variety of shapes, sizes and designs, and they are perhaps one of the most important items in the touring equipment. A number of them are illustrated on pages 1212 and 1213. There are styles which open directly to the inside and others which contain two or more inner cases, as seen in Fig. 4, page 1213. Some combinations are arranged to fasten together with straps at the sides, which, when waterproof covers are placed over them, make very compact baggage equipments, as illustrated in Fig. 1, page 1212.

The leather and the brass or other metal of which these trunks are made is of the best, and no hand baggage receives more attention in manufacture. With prices ranging from \$10 to \$75, they indeed come within the reach of every automobilist.

[EDITOR'S NOTE—THE AUTOMOBILE is indebted to Fox-Stiefel & Company, John Wanamaker and Saks & Company, of New York, and to W. W. Winship, of Boston, Mass., for the use of the automobile apparel and accessories from which the illustrations accompanying this article were made. Photographs by N. Lazarnick, New York.]

Elastic Wheels.—In an analysis by which he arrives at the result that wheels with elasticity in the circumferential portion, the rim and tires, are the only ones to be considered for commercial motor vehicles, Capitaine Renaud sums up the requirements to which all elastic wheels must conform, as follows:

They must (1) deaden shocks due to road inequalities; (2) absorb vibrations as completely as possible; (3) transmit the traction effort elastically; (4) assure transverse stability of the vehicle; (5) have no exaggerated eccentricity under load nor an eccentricity varying with the point of support; (6) be sufficiently substantial without excessive weight; (7) be proof against deterioration from rain, slush and dust.—From *Omnia*, May 4.

Home-Made Renovators

Formulae to Be Followed in the Preparation of Compounds to Restore Varnish Brilliancy

How to Make a Lacquer Suitable for the Polished Parts of a Car

OF THE making of renovators, polishes and lacquers suitable for the automobile there is no end, apparently; but from the large number of preparations glowingly recommended by an army of automobile doctors it is a matter of the first importance for the car owner and the man interested in the up-keep of the vehicle to choose wisely.

This it is not easy to do, since with the utmost sincerity some originators of renovators and polishes come forward and promise to perform miracles upon the surface of the car. About the best the man unacquainted with the actual merits of the different materials can do is to take several makes in hand and try them out practically until he is fairly convinced which one of the lot tested is most likely to meet his individual requirements.

In former issues of THE AUTOMOBILE we have urged for the newly-painted and varnished car frequent clean water baths, and a method of caretaking in general which will postpone to the most remote period possible the use of varnish renovators and polishes. Some of the reasons for deferring the practice of cleaning and renovating the surface with any one of the very best varnish renovators and polishes have also been set forth.

All renovators and cleaners, capable in any way of cleaning the surface and renovating it, have an erosive effect which in time—usually a very short time—will nip off the high lustre, and blur the depth and tone, and in a hundred other minor ways contribute to the permanent loss of good looks and brilliancy.

Some Formulae for Renovators

It is comparatively easy to work in the chemical laboratory a renovating compound that to the chemist looks fit and fine; but out where rugged service meets one single-handed, this same mixture may not amount to much. Then, too, the renovator may under one set of conditions work to the development of the finest results, and under an equally promising set of conditions go altogether awry.

Naturally, we need not expect that all the good qualities are concentrated in one renovator or polish. In making choice of two or three or more formulae submitted, the car owner may feel perhaps reasonably certain that with at least one of the lot he may, after testing them out, be able to do good work. Should he, elect, however, to prepare a renovator or polish for use upon his car we herewith submit a formula recommended by a finisher of many years' experience:

Denatured alcohol 1 quart
Gum shellac 4 ounces
Benjamin gum ½ ounce
Clear rosin ½ ounce

Dissolve the gums and rosin in the alcohol and shake thoroughly. Apply to the surface with soft flannel moistened with the mixture, and polish with dry flannel, being careful not to rub too hard.

Another preparation is made of 2 parts each of paraffine oil and rain water and 1 part each of pure turpentine and denatured alcohol. The alcohol and turpentine should be mixed together, and the water and oil together, whereupon the alcohol and turpentine are to be added to the water and oil, the four ingredients then being confined in a can or bottle and shaken until a complete incorporation of all the ingredients is obtained. This renovator will require frequent shaking up as the parts have a pronounced

tendency to separate. Apply with canton flannel and wipe dry with pieces of the same fabric.

As a renovator pure and simple, suitable for application after the surface of the car has been washed and made clean, shake together equal parts of pure turpentine, raw linseed oil and vinegar. Moisten fine canton flannel and apply freely to the surface, drying off with a dry piece of the same goods.

For a surface old, badly worn and past the first stage of varnish deterioration use a formula consisting, by weight, of

Wool grease ½ ounce
Paraffine oil 1 pound
Distilled water 1½ pound
Raw linseed oil ½ ounce
Denatured alcohol ½ pound
Turpentine ½ pound

Mix the wool grease, paraffine oil, distilled water, and linseed oil together thoroughly by shaking in a container, and then add the alcohol and turpentine, working all the ingredients together until a perfect mixture is obtained.

This preparation, of course, is recommended only as a means of prolonging the life and wearing quality of the surface advanced along the road of decline to a point where a fresh coat or two of varnish becomes almost a necessity. Expected to do more than this, and it will prove a disappointment.

Lacquers and Metal Polishes

Many cars are still equipped with brass furnishings which to keep bright and clean, and to confer some measure of fine appearance to the car, need frequent polishing. When such parts have been lacquered, and the lacquer remains in condition, it is not the tarnish, but the accumulated dirt and corrosion and gases, which are to be removed. A good metal polish may be bought for this purpose or it can be shop prepared by stirring powdered tripoli into sweet oil until a thin paste is reached. Apply with a piece of felt and rub thoroughly.

Or, mix 1 part sulphur and 3 parts Paris white (chalk) to a heavy paste in vinegar. Keep this paste in a moist condition and apply it to the surface, permitting it to dry thereon. Then rub with a piece of chamois skin or wash leather.

These polishes will serve to fetch the bright, fine luster of the metal out clearly upon the brass when such brass has not been lacquered. However, all unlacquered brass will require practically constant polishing to keep it in condition, exposure to the air after polishing causing the surface to tarnish very quickly.

When it is necessary to remove the lacquer from the brass parts dip them in a solution made of 5 pounds caustic soda and 20 gallons of water. Then polish with a mixture of 7 parts rotten stone and 1 part oxalic acid, by weight, moistening the powder with a spray of water when using. Apply with a piece of soft felt and finish off with a piece of wash leather. Before such parts are exposed for service they should be given a coat of lacquer which material may be bought ready to use.

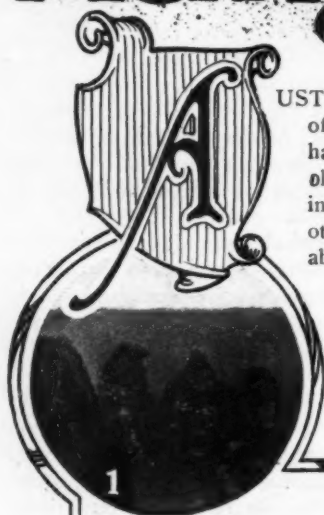
For use in small quantities the lacquer may be shop prepared as follows:

Turmeric 4 ounces
Gamboge 1 ounce
Shellac 3 ounces
Sandarac 14 ounces
Finishing varnish 1 pint
Denatured alcohol ½ gallon

Put the turmeric in the alcohol, and then add the solid ingredients, dissolving by the heat of a water bath, lastly adding the varnish. Shake in a can or bottle until the mixture is perfect.

A simple and effective, and, on the whole, a fairly satisfactory substitute for the above lacquer may be had by thinning elastic body finishing varnish with turpentine. Very thin white shellac offers another substitute for the lacquers made up through an elaborate course of processes. Apply all lacquers, regardless of make or composition, with a camel's hair blender 1 inch or 1½ inch wide. Much of the fine finish of the car comes from having the condition of all the parts well balanced up.

Touring in Kangaroo Land



AUSTRALIA has many inducements to offer to the tourist, and those who have traveled in countries of the older world will find many places of interest worth visiting. Unlike most other countries, the climate is suitable all the year round for touring; but for all that it is preferable to study the seasons, as this will add all the more to one's comfort. For instance, the northern parts of the island continent are subjected to heavy tropical rains

in the summer months, while in the winter the weather is ideal in the southern parts, especially in Tasmania, which is besieged by Australian tourists at Christmas time.

As in America, legislation dealing with motor cars differs in each state, but the tourist can, on applying at the first police station, obtain a permit to tour any state with the same registered number plate. The registration in most states is about \$5, and a driving license costs from about \$1 to about \$2.

In New South Wales the police department is very strict, and before a car can be registered the brakes are tested on a steep hill and the steering gear is searched for loose connections and any bolts that have not been pinned. The reason of this is because of failure of brakes to act or of steering gear to respond is no excuse in law for accident; also it is a misdemeanor to drive a car with faulty brakes or defective steering gear, and any police officer who suspects any shortcomings in this respect in any car traversing the streets has the power to stop such car and examine the parts, and to take proceedings if necessary.

Speed Limits Very Reasonable

Speed limits are very reasonable; in all cities it is set down at 15 miles an hour between blocks, but if the road is clear an increased speed is permitted. Over crossings it is set at 6 miles an hour, but if the driver gives a warning toot of the horn to the traffic-controlling constable he will probably clear the way for passage over the crossing at 15 miles an hour.

In the country districts there is no speed limit and the tourist may go as fast as he likes, but must slow down when any traffic is met or where sign-boards are erected, these boards being put up only in dangerous places, such as narrow and shaky bridges and sharp turns. Police traps are almost unknown, and these are only to be met in the suburbs, and if a speeder is caught it is



- 1—The Three Sisters at Katoomba, 3500 feet high
- 2—Signboard indicating speed of 4 miles an hour
- 3—At the top of Bulli Pass, showing excellent road
- 4—In Bulli Pass, where ferns grow in profusion
- 5—Branch track through Iron Bark timber country



1—View of the river at the National Park, Sydney



2—Portion of road leading through Darke Forest

3—Worst bit of Darke Forest road, 100 yards long

4—Stanwell Park, from the top of Bald Hill

sure to mean a fine of about \$10, as defending cases is hopeless.

The roads in Australia were a few years ago considered bad, but the various state governments have spent enormous amounts of money lately, and with the exception of Queensland, all the main roads at least are of solid macadam. The authorities are now turning their attentions to the branch roads. That leading to Mount Kosciusko, the highest peak in the commonwealth, was but a few years ago a mere rough, stony track, and years ago, when a car reached the top, it created a marvelous sensation. Since then the government has improved the road and converted the rough track into a good highway, also easing the severe gradients, until now the owner of a small 8-horsepower runabout thinks nothing of taking a trip to the top of the mountain.

The road between the two main capitals, Sydney and Melbourne, is almost perfect on the New South Wales side, and there are stretches of 20 and 30 miles near Yass (the site of the federal capital) and other southern towns where the motorist can let his car out as fast as it can possibly go, and without fear of striking any waterbreaks, as these have all been removed.

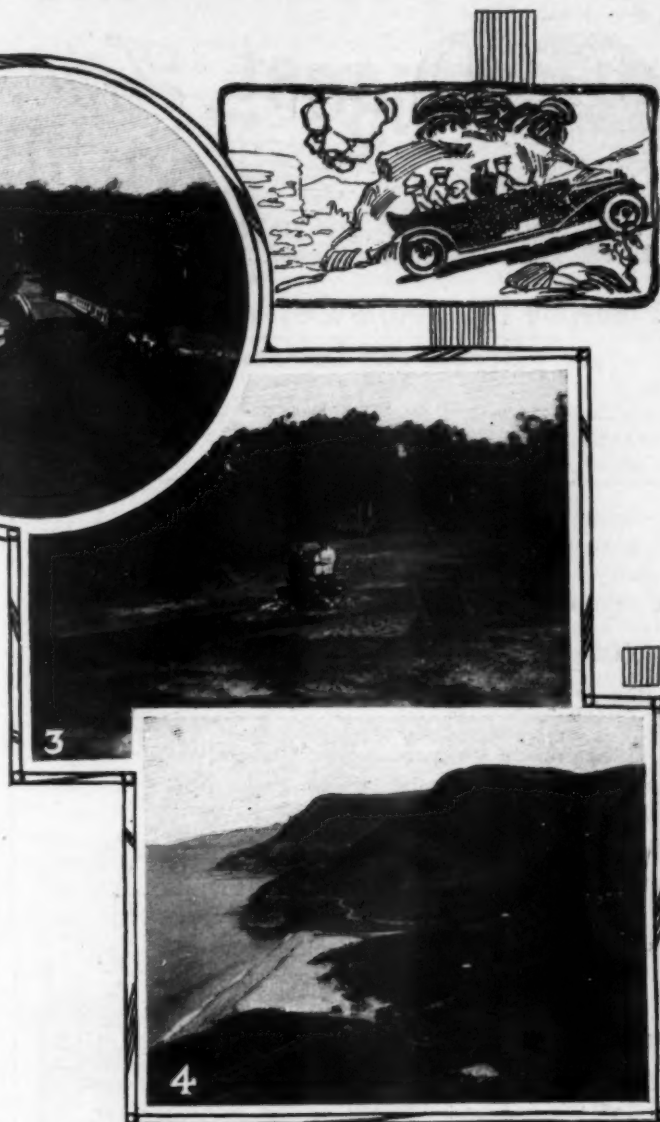
In New South Wales and Victoria the roads are generally good except in the suburbs, and these are being rapidly improved. The city streets are all wood-paved on a concrete bed of a thickness of 6 inches, and the surface is equal to that of any boulevard in France. These conditions also apply to other cities, and as the weather is generally fine, the streets are dry and skidding on the blocks is not frequent, chains being but seldom required.

Most Cities Have Wide Streets

The streets of the city of Sydney are mostly very narrow. Pitt street, which is the second in importance, is so narrow that but a single car track is possible, and then any ordinary truck or wagon has barely room to pass. In the other cities, Melbourne and Adelaide in particular, the streets are very wide, ranking in this respect with those of any city in the world.

Queensland should be visited only in the winter months, as it never rains then, while in the summer time the traveler encounters a series of tropical downpours, and as the majority of roads are only dirt tracks of black soil, traveling then is impossible for any vehicle. When the weather is dry the soil sets so hard and smooth that any speed is safe. It is a peculiar fact that when it is best to visit Queensland, the other states are at their worst.

Hotel accommodations at the popular tourist resorts are excellent, but in the season it is advisable to secure rooms a day or two ahead in order to avoid any chance of disappointment or inconvenience. The tariff charges throughout are moderate when compared with some of the hotels in America. Guide books



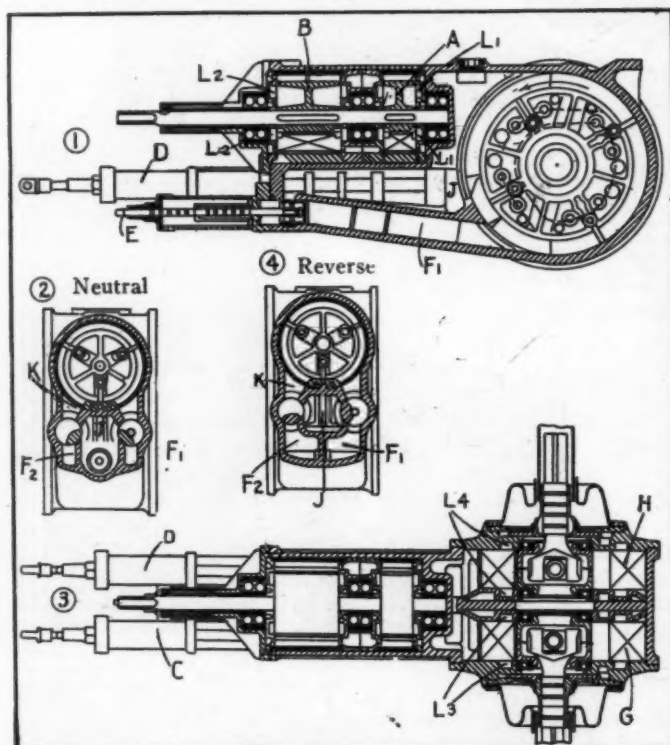
with hotel and other information may be had free of charge from any of the government tourist bureaus, and the same applies to New Zealand. Each state has an office in all the other states, so that information may be had before starting to tour another state.

From some of the tour descriptions one would be led to believe that Australia is a sandy and desolate place to visit, and in the opinion of one writer it would be hard to find a worse road in the country than that along the Coorong. The writer is personally acquainted with the conditions that are to be met with there, however, and believes that a true description of the section named may prove valuable and interesting. The Coorong is a narrow stretch of water 90 miles in length, being separated from the sea by a narrow sandy strip of land, which is not more than a half-mile in width. During the winter months—the rainy season in this part of the country—the water in the Coorong rises and floods the bush road, and the motorist who attempts to travel from Melbourne to Adelaide in the winter time will have to face the sand hills to avoid being bogged in the mud; but in the summer time half the water dries up and leaves a hard mud track, the going being fairly good. It might also be mentioned that the Melbourne to Adelaide record stands at 19 hours for the 500 miles in a 30-horsepower car.

In South Australia, Victoria, South Wales and Tasmania the good roads far exceed the bad, while heavy and neglected roads are becoming fewer with each succeeding year. The ordinary Australian road will allow an average speed of 23 to 25 miles being maintained by a car of 20 horsepower without knocking the car about.

Digest of the Leading Foreign Journals

Plausible Hydraulic Drive Developed by Hugo Lentz of Berlin Gives Several True Speeds and Intermediates by Slip—Approaches Spur Gear System in Efficiency—Probably Best for Slow-Speed Motors



Figs. 1, 2, 3 and 4—Sectional views of the Lentz gear; (1) Vertical lengthwise; (2) Vertical crosswise, with control on neutral; (3) horizontal lengthwise; (4) Vertical crosswise, with control on reverse

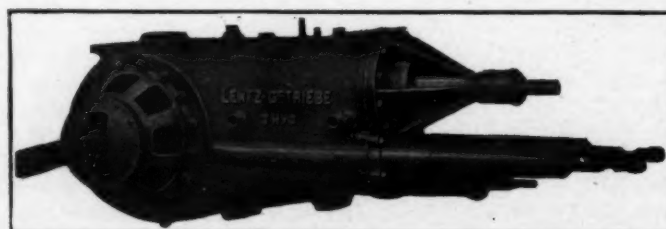
LENTZ Hydraulic Drive and Brake—As an hydraulic transmission takes the place of the clutch, the gear box, the differential and one set of brakes, if not both, and thus promises a considerable simplification and cheapening of automobile construction, and as in addition an hydraulic transmission may be readily conceived by which the operative movements of the driver are rendered as simple as those required for a friction-drive or a gas-electric vehicle, while the wear of parts can be reduced to a minimum by virtue of the submersion of all working parts in the oil which serves as the medium for the transmission of power, many attempts have naturally been made at the perfecting and development of mechanisms of this order. Some of these were described in a recent issue of *THE AUTOMOBILE*. If they have not yet figured prominently in automobile practice, this fact may be ascribed to one or another of the following defects in the constructions which have been offered: Inefficiency due to internal leaks or to a design by which the conversion of power into speed, or *vice versa*, is not actually accomplished or in which this conversion is accompanied by strangulation of the liquid and excessive friction losses in this medium, great heat being generated; high pressures resulting in leaks at

the bearings, with consequent loss of the liquid and formation of air pockets in the mechanism; tight bearings working with great friction and gradually resulting in wear and leakage; complicated and expensive construction unsuited for production by automatic machine tools; failure to provide compensation for unequal expansion of parts.

The construction devised by Hugo Lentz differs from most of those which have preceded it in having a stepwise instead of a continuous change of the power ratio, being in this respect closer to the ordinary sliding-gear transmission system than to the friction drive or even the multi-step electric control. A Lentz transmission which has been in use on a Berlin omnibus for several months without becoming subject to any disorder is equipped with five variations of the power ratio, but the normal construction for lighter vehicles has only three gear speeds.

In brief, the plant of the Lentz 3-speed transmission is that the motor shaft drives one or the other of two eccentric-paddle pumps which are mounted upon a shaft in prolongation of the motor shaft, and the liquid sent forth from these pumps drives two similar pumps mounted transversely, each of which drives one of the rear wheels through cardan shafts to the hubs (the whole transmission casing being suspended from the vehicle frame and the rear axle of the vehicle bent back to make room for the drive shafts), and the liquid returns by a separate channel to the driving pumps. The control consists in three shifter rods with cam and slide action. One controls the reverse and brake actions, another the forward speeds and the third is a clutch and moderator allowing a partial mingling of the liquid which is under pressure and that which is under suction. In fact, all the control is effected by short-circuiting or switching of the liquid in one form or another. The forward and the reverse shifts are operated by a single lever whose position gives, progressively, reverse on low, neutral, forward low, second and high and reverse on high. The clutch and moderator shift is separately operated by pedal.

In the accompanying illustrations A is the smallest driving pump which, when used alone, gives slowest forward speed, or the reverse when the reverse shift D is applied. The pump B gives middle speed alone, and A and B together give high speed. The forward speed shift is C and the clutch and moderator shift is E, which also acts automatically as safety valve; to reduce pressures, for example, when the reverse is used as an emergency brake. The liquid from the driving pumps enters channels F₁ and F₂.



General view of Lentz hydraulic drive and brake

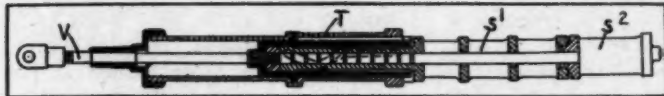


Fig. 5—Forward gear shift for 3-speed hydraulic drive—The reverse shift is separate and designed on the same principle

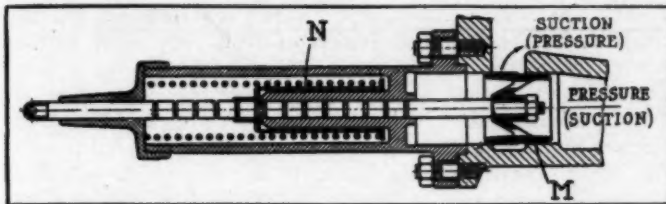


Fig. 7—Section of the clutch, moderator and safety valve of Lentz drive

during forward going and these communicate with the eccentric spaces swept by the slide-paddles of the driven pumps G and H. The eccentric spaces communicate at the other end with the return channel J which opens laterally into the suction space K behind the driving pumps A and B. The in-and-out movements of the paddles are governed by the eccentric cam grooves L_1, L_2, L_3 , etc., formed in the walls of the pump casings, pins with roller rings extending in these from the edges of the paddles. Resistance to the paddle movements is obviated by the fact that some move out while others move in, so that the liquid behind them remains approximately constant.

Fig. 2 shows the position of the control shifts in which the driving pumps simply drive the liquid idly around, the pressure channel opening into the return channel and the latter into the suction channel. Fig. 4 shows the position of the shifts for reversing. The construction of the forward gear shift for a 3-speed machine is shown in Fig. 5. It is similar to that of a Corliss slide in steam practice. Separate cylindrical valve bodies s_1 and s_2 , with suitable cut-outs to constitute channels for the liquid, are provided for each of pumps A and B, and these are both turned on their axis by the lengthwise movement of the control rod V and the casing T. To this end, casing T is formed with two cam grooves U_1 and U_2 , shown separately as upper and lower in Fig. 6, and the spindle of s_2 carries on a nut screwed upon the end of the spindle, a roller stud which engages the cam groove U_2 , while a similar roller stud governing the position of s_1 is carried upon a sleeve forming a prolongation of the valve body s_1 and fitting tightly around the spindle of s_2 .

In a five-speed construction, casing T has 3 cam grooves, corresponding to the 3 driving pumps, and two of the three roller studs are mounted on concentric sleeves. As the lateral turning movement does not exceed 120 degrees, it is quite practicable to control all three pumps by the lengthwise movements of a single control rod and casing.

The reverse control is controlled by a cam groove and roller stud in the same manner as the forward gears. If 3 pumps are used to produce 5 speeds, this control has two cam grooves.

Fig. 6 gives a diagrammatic showing of the simultaneous positions of the roller studs on the two speed shifts s_1 and s_2 and on the reverse shift in their respective cam grooves in the casing or sleeve, the figures from 1 to 6 indicating the portions of the grooves where the studs are located in the six possible speed positions, which, as above mentioned are: reverse on low, neutral, forward low, forward second, forward high and reverse on high.

The moderator valve is shown in Fig. 7. When the valve M is drawn back by pressure on the control pedal, a connection is established between the pressure channel and the suction channel and, according to the size of the opening made, the driving pressure is reduced. The spring N and the active area of the valve are dimensioned and adjusted to hold the valve in its normal position, when the pedal is not operated, until such pressure as is considered the maximum allowable is generated in the mechanism.

But when the reverse is applied, pressure and suction are reversed, too, and a special provision is necessary in order to make the valve operate automatically for safety under this condition. This provision, which is not shown plainly in the drawings, takes the form of a ring-shaped shoulder on the outer cylindrical surface of the valve, against which shoulder the pressure in what is normally the suction channel may take effect. It is found mathematically that the area of the shoulder must be one-half of the cross-sectional area of the valve shaft. [To understand the action of this valve, it must be observed that the valve body is a hollow cylinder supported from the valve shaft by means of a spider, so that there is liquid all around it and inside of it. Otherwise its action would mean an increase in the volume to be occupied by the liquid in the whole mechanism and consequently an inadmissible suction at all shaft bearings leading to the atmosphere. Considered as a piston, only the cross-sectional area of its shaft is subject to pressure from the liquid in the pressure channel.—Ed.]

In order to use this valve as a motor brake is used to moderate the vehicle speed in going down long hills, the forward speeds are placed on neutral, and the driven pumps will then force liquid against this valve, and if this pressure is more or less assisted by the foot on the pedal, the vehicle speed is regulated at will. If the valve is kept altogether closed, the whole spring pressure will of course be acting to brake the vehicle.

In practice it has been found that all the interior mechanism of this hydraulic gear operates satisfactorily, but great trouble was experienced in guarding against losses of the liquid at the drive shaft bearings so long as the drive shafts were connected with the driven pumps by flexible joints at the interior of the pumps. This feature has therefore been changed, and in the present actual construction the shafts of the pumps are extended to the outside of the casing and the bearings protected against leakage on the principle of the labyrinthine fluid-guards known from steam turbine practice. The number of the paddles in the driven pumps has at the same time been reduced to 4.

The weight of the whole mechanism has been reduced since the first trials from 540 kilograms for dimensions adapted for a 40-horsepower motor to 220 kilograms for the type of mechanism shown in the drawings and intended for the same power.—From *Der Motortwagen*, April 20.

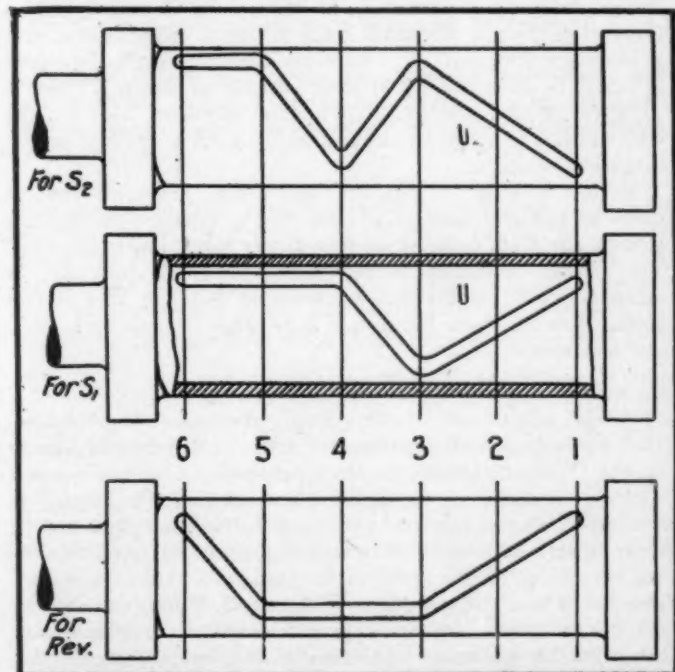


Fig. 6—Diagram showing how two camgrooves on the forward gear-shift and one on the reverse-shift may guide the control movements for all speeds though both shifts are operated with single lever

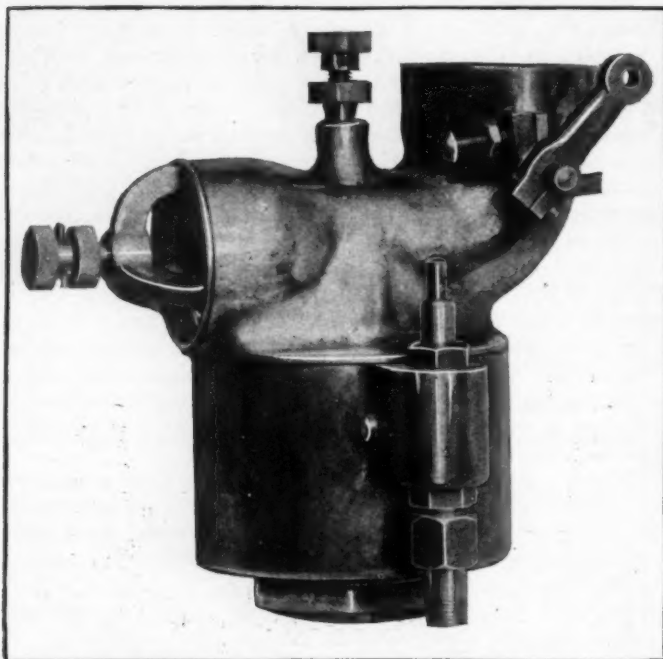


Fig. 1—Showing Maco carbureter, with vertical manifold connection

Effective Carburetion

Merits of Venturi Tube Design in the Making of Carbureters—Homogeneity of Mixture

Illustrating Workings of the Type Through the Medium of the Maco Carbureter

CARBURETERS have been designed in a number of ways to meet the exacting requirements of the automobile, but now the generally adopted method of carburetion is that by which the fuel is sprayed through a small nozzle in order to mix with a passing column of air. In most carbureters the float-feed principle is made use of in some manner or other. There is some variation in the shape of mixing chambers, however, the type which is of varying cross section being much in favor among carbureter makers.

Suppose a fluid to pass through a pipe having a variable diameter and cross section. If the flow is constant the quantity passing any given point of the tube in any given time is the same. The velocity of passage at any section must therefore vary, it being inversely proportional to the cross sectional area at that point. That is, where the section is greatest the velocity is least, and *vice versa*.

Venturi Design Much Used

This is the principle of the venturi tube, and it has been extensively utilized in carbureter design with very satisfactory results. When so applied the mixing chamber of the carbureter is made in the shape of two hollow truncated cones, their smallest sections coming together. At this point of smallest diameter the spray nozzle is located, thus insuring that the atomized fuel reaches the air at the point in its passage through the mixing chamber where its velocity is greatest. This use of high air velocity under low pressure makes for economical fuel consumption. Further advantage of the use of the venturi design is that since the fuel is very finely divided by the rapid internal motion of the fluid at the constricted section of the mixing chamber, a homogeneous mixture is obtained; that is, all parts of the charge which pass into the explosion chamber of the engine have exactly

the same proportions of gasoline and air in their make-up.

The Maco carbureter, one type of which is shown in Fig. 1, is of the venturi type, the spray nozzle being located at the smallest section of the vertical venturi-shaped mixing chamber.

Fig. 2 shows a section of a Maco, which is in every way similar to that seen in Fig. 1, except that it has a horizontal manifold connection instead of the vertical attachment of the Fig. 1 model. The venturi arrangement is shown at D of Fig. 2, and the nozzle at E. The smallest section of D is seen to be at the nozzle, the reason for which has already been brought out. The air enters through the permanent intake G at the bottom of the carbureter; passes vertically upward through the mixing chamber and thence through the butterfly throttle valve B into the intake manifold. This valve B is, of course, operated through the lever seen at the top and which is connected with the throttle lever on the steering wheel of the car.

Radial Float Chamber

The float chamber is radial, and designed in such a manner that it may be turned to any position to bring the gasoline connection to the side most convenient to the supply tank. The cork float F is seen to be concentric with the mixing chamber and the spray nozzle. This nozzle E is directly in the center of the float chamber, insuring a constant fuel level in any position of the engine.

The needle valve adjustment for regulating the flow of gasoline is located at the top of the carbureter at A. The point of the needle is inserted in the top of the spray nozzle, spreading the gasoline as it comes from this nozzle and helping to vaporize it. The idea of the designer in placing this adjustment at A was that the necessity for a packing nut in this location was obviated. Such a packing nut would have been necessary had the adjustment been placed at the bottom.

The adjustment for the auxiliary air valve is shown at C, the spring of which may also be noticed. The tension in the latter is controlled by this thumb-screw C, which, like the needle valve adjustment A, is provided with a lock nut for keeping the adjustment tight once it has been reached.

The lifter which bears on and is operated by the float F is pivoted at the back and controls the upward or downward motion of the needle valve through which the gasoline enters the float chamber from the supply. When the gasoline is at its maximum height in the float chamber the float is brought up correspondingly, thus raising the lifter. This being pivoted, presses down

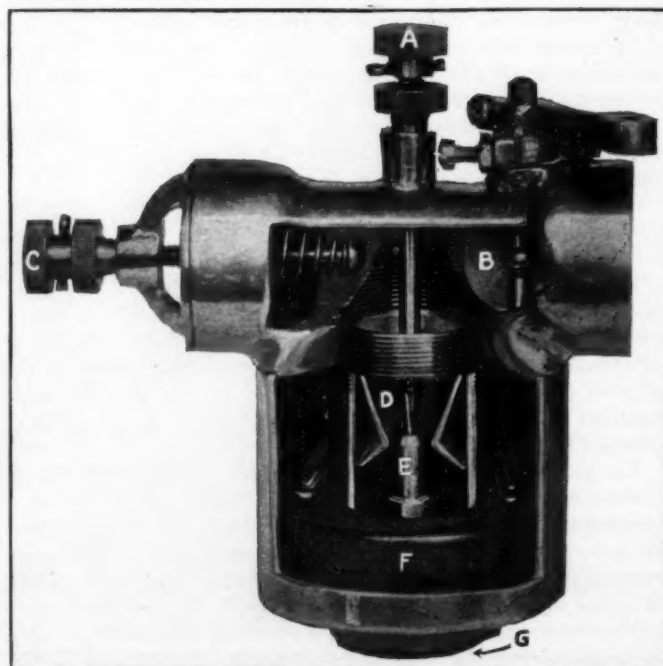


Fig. 2—Sectional view, showing Venturi type of mixing chamber

on the needle in turn, closing the inlet from the supply until such time as the level in the float chamber falls. The lower the level of gasoline the wider the inlet needle valve is opened by this arrangement, which is common to practically all automobile carbureters now on the market.

The gasoline passes from the float chamber into the spray nozzle E through a connecting tube, the opening of which is seen in the lower illustration of Fig. 3. The housing for the needle valve controlling the flow from the tank and the tank connection are clearly seen at the right side of the middle view in Fig. 3.

One feature of the Maco is that there are only three main parts, as Fig. 3 clearly shows. In disassembling the apparatus the nut at the bottom of the lower member (which is really the venturi tube and mixing chamber) is all that must be turned. The construction is therefore very simple.

Manner of Adjustment

In adjusting the Maco carbureter the needle valve A should first be turned to the right until it seats; then to the left one full turn. The spark should then be retarded, the throttle B opened about one-fourth and the motor started. Then the needle valve should be turned to the right until the engine back-fires, after which it should be turned slowly to the left until the greatest speed is obtained with the spark and throttle in the positions given above.

The throttle should next be opened wide, the spark advanced and the auxiliary air valve C adjusted. The tension in this air valve spring is strengthened by turning the thumb-screw C to the left, thus cutting down the amount of air.

By noting the action of the engine when this is done the position for best results will easily be obtained. After arriving at the best relative adjustments of the spray nozzle valve and the auxiliary air valve the lock nuts should be set to preserve the correct arrangement. Unless the auxiliary air valve seats lightly at low speed the engine will obviously be hard to start.

Harking Back a Decade

FROM *The Motor Review*, May 29, 1902:

Gottlieb Daimler, father of the automobile industry, is honored by the present production of Daimler vehicles in practically every branch of the trade. In Europe no class of automobile building is without a Daimler. The Daimler engine stands out prominently as a representative of a type—using the hot-tube system of ignition. The company clung to this system despite the fact that many others have adopted electrical ignition.

With the coming week *The Motor Review* will be consolidated with *THE AUTOMOBILE* and the joint issue will be a weekly publication under the name of *The Automobile and Motor Review*, in the size and style of the former journal. *THE AUTOMOBILE*, being one of the pioneers in this industry, has become one of the best known and most popular monthly journals; and *The Motor Review* is equally well known in the weekly field. The new paper will be issued on Saturday instead of Thursday.—*Editorial announcement.*

Whatever degree of special immunity he may have enjoyed in the past, the user of a motor vehicle in New York is at the present time held strictly to the letter of a narrow and rigid law. The disposition of the courts, as shown in several recent cases, is to accord no favors to a motorist who is accused of illegal speeding and to punish him if convicted.—*Editorial.*

The Automobile Club of America has received seventy-three entries for its 100-mile endurance contest and forty-three for its kilometer and mile speed trials May 30-31. R. A. Rainey has entered his new \$18,000 Panhard in the speed trials. The Baker Motor Vehicle Company has entered a 7-horsepower electric which is expected to make 60 miles an hour or more.

Plans are being completed for a race meet at Indianapolis for Memorial Day. The races will be run over the state fair course. Thirty entries have been assured for the principal events.

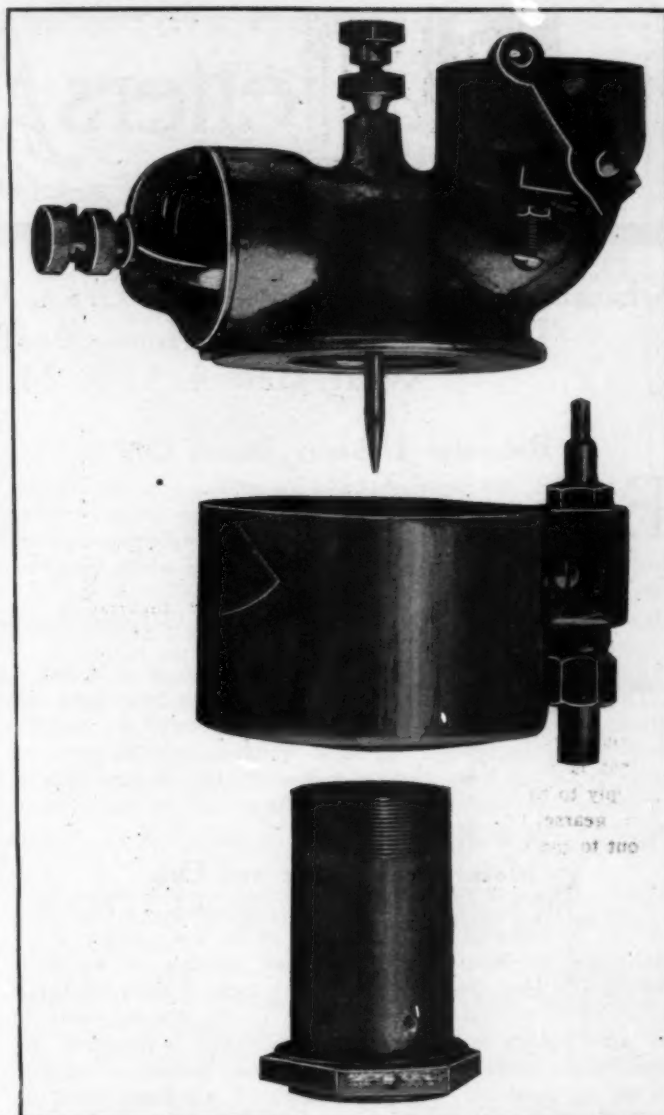


Fig. 3—Showing the Maco three-piece construction

Mr. and Mrs. E. R. Thomas were stoned while riding in their car on Sunday in East Forty-seventh street. The mob beat Mrs. Thomas into unconsciousness with a tin boiler cover, seriously cutting her head.

The first jury award of damages growing out of an automobile accident in New York was registered this week when E. R. Thomas was mulcted for \$3,125 for the accidental killing of a boy. The coroner's jury which made the inquiry into the facts in the case exonerated Mr. Thomas, it having been proved that the car was moving slowly and that the unfortunate victim ran directly under the wheels when its direction was changed to avoid hitting him.

The Goodyear Tire and Rubber Company has announced an enormous increase in its capitalization. The present company has a capital of \$200,000, which was ample for its purposes up to the time it won its case against the Consolidated Rubber Tire Company involving important patent rights. Since then its manufacturing scope has been enlarged and new capital has become necessary. Therefore, the corporation has decided to expand to \$1,000,000.

Dr. J. Grant Lyman, of the Automobile Club of America and Kenneth A. Skinner, of the Boston De Dion branch have been suspended by the club for exceeding the speed limit during the Long Island endurance run in April. Dr. Lyman made the 100-mile course at an average rate of 25 miles an hour, while the maximum limit allowed was 15 miles an hour.



Changing Location of Inaccessible Grease Cup; Some Pointers as to Gasoline; Carbon Troubles; Can't Make Home-Made Pump Work; Unique Case of Tire Wear; How A. L. A. M. Formula Was Figured Out

Relocated Unhandy Grease Cup

EDITOR THE AUTOMOBILE:—I am sending you two sketches (reproduced in Figs. 1 and 2) which may prove of interest. They show how to relocate the differential grease cup on some of the smaller class of runabouts which have this cup in an unhandy position. It is a very important cup and should be tightened every day. The method of piping shown renders the cup very accessible.

Erie, Pa.

P. P. AVERY.

This suggestion should interest car owners who have the grease cup on this important part of the car located in a position that is hard to reach. The same directions may be made to apply to the cup located on the universal joints of some cars or on gearset bearings. In these cases the grease cup can be piped out to the side of the car.

Measuring Gasoline and Oils

EDITOR THE AUTOMOBILE:—For the satisfaction of a subscriber to THE AUTOMOBILE will you kindly advise me whether heavy lubricating oil, light lubricating oil and gasoline are measured the same in iron drums? That is, are each of these measured according to standard liquid measure, or are oils measured by so many pounds to the gallon while gasoline is measured the same as any other thin liquid? How many gallons of gasoline should be contained in an iron drum of cylindrical form, 21 inches in diameter and 33 inches deep?

Altoona, Pa.

H. F. FABER.

A gallon is a purely volumetric measure and is hence altogether independent of the weight of the fluid to be measured. Gasoline, oil, water and any other liquid can all be measured by the standard gallon, which consists of 231 cubic inches. The iron drum you describe would have a capacity of 49.5 gallons.

Questions Regarding Gasoline

EDITOR THE AUTOMOBILE:—I would like to ask a few questions regarding gasoline to be answered through Letters Answered and Discussed.

(1) Is it possible that a low-grade gasoline can have as much power as a high-gravity gasoline?

(2) If a Schebler carbureter is adjusted so that it works properly on .76 Beaumé gasoline what adjustment should be made so that it will work properly on gasoline of .70 test?

(3) Should the gasoline adjustment remain the same and the air be adjusted or should the air adjustment remain the same and the gasoline be adjusted?

Vincennes, Ind.

C. A. P.

(1) The heating value of the lower grades of gasoline is not as high as that of the higher gravity tests.

(2) The only adjustment necessary is a slightly increased opening of the needle valve. Start the motor as it is and then gradually open the needle valve until the motor runs at its best. The gasoline, being a little heavier, requires a little more room in passing around the valve.

(3) This question is answered under (2).

Carbon in the Front Cylinder

EDITOR THE AUTOMOBILE:—I wish to take advantage of your trouble department and ask a question. I have a model 38 Overland 1910 car which has not been working as well this spring as it did last fall. If I am running along at a good rate, using the accelerator, it works all right, but if I take my foot off the accelerator the cylinders will not all fire until the speed slackens so that the engine again takes up the load. When I go down hill the same thing happens. The trouble is not all in one cylinder, as it splutters at uncertain intervals. The local garage men tell me that the trouble is common with most cars and I would like to know if you can tell me the cause and the remedy.

(2) Can you also tell me what kind of a washer to use on the rear wheel to keep the grease from coming out over the brake drum? I have tried leather, but it does not seem to do any good. I do not think it is the grease from the differential, as the trouble is only on one wheel.

(3) I am troubled greatly with carbon, especially in the front cylinder. This cylinder seems to get too much oil, although I have cut the supply as low as possible.

Hartford City, Ind.

J. F. H.

(1) This may be caused by valve trouble if you have not had them ground recently; the probabilities are, however, that the magneto points are worn. By the use of a light file on the trembler points these can be trued up. They should then be adjusted so that there is a distance of 1-32 inch between the spring and the anvil.

(2) No doubt the lining which is placed inside the rear system housing to take up wear on the roller bearings is worn on the side that gives the trouble. New linings cost 75 cents each and they are readily fitted. If you wish to make a good job of this so that the trouble will not develop again it would be well to replace the felt and leather washers which are placed inside the rear housing to prevent the flow of the grease from the planetary gears to the brakes. A small vent hole should be

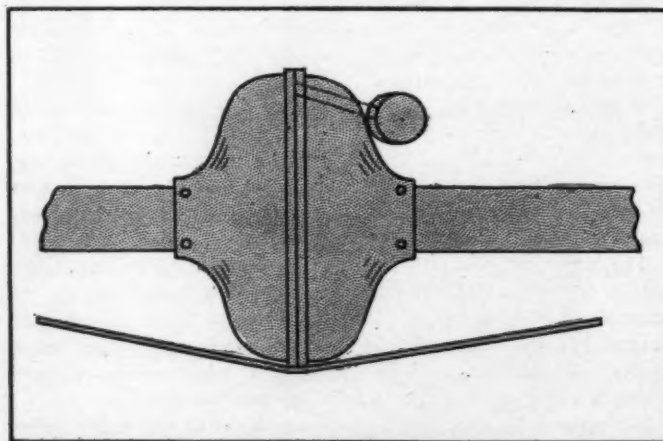


Fig. 1—Showing position of grease cup after being remedied

drilled in the bottom of the housing on either side of the gears. Planetary gears heat up when the car is driven for some time at high speed. The heat creates a pressure in the housing which tends to force the oil out into the brakes. By drilling these small holes in the housing the grease that works its way out of the gear box will be forced by the pressure through the openings and will thus be prevented from getting into the brakes to a large extent, while the washers will take care of the rest.

(3) An ill-fitting valve in this cylinder, which causes occasional misfiring, will allow the grease to work its way into the cylinder in quantity so that when the charge is fired carbon will develop in this cylinder. The probabilities are that after you have cured the trouble taken up under question (1) the carbonizing troubles will also disappear. It is recommended that you have the valves ground and the magneto points filed true. The trouble is not in your oil supply, as, if the car were getting too much oil, the motor would discharge blue smoke through the exhaust pipe.

Troubled by a Home-Made Pump

Editor THE AUTOMOBILE:—In the issue of THE AUTOMOBILE for October 26, 1911, there appeared an illustration of a pump designed by one of your subscribers. It was claimed by the inventor that this pump could do the work as well as many pumps which cost a great deal of money.

I made a pump exactly like the one described, but it does not work. I cannot understand why it should fail to operate, but I have tried it on two different cars and it does not seem to give any satisfaction. I place my thumb over the spark-plug hole and could easily hold the compression. The pump works in a way, but I don't think it will give more than 10 pounds pressure. Can you enlighten me on the subject?

Kiran, Ia.

F. E. LUNDELL.

This pump has been tried by several, and it seems impossible to find any who have made a success of it. They have all been able to get a slight pressure in the tires, some as high as 40 pounds, but no one seems to have been able to fully inflate their tires. THE AUTOMOBILE would be glad to hear of anyone who has made a successful pump along the lines of that mentioned.

Rear Right Tire Wears Quickly

Editor THE AUTOMOBILE: My automobile, which has not troubled me mechanically since I bought it about a year ago, has suddenly developed a streak of tire trouble that I think is unique. The rear casings, of course, always wore more rapidly than those in front, but in the last few weeks the rear right tire has worn about twice as rapidly as the left rear casing. Can you tell me the cause of this? It might help you to know that the car is a rather heavy five-passenger touring model with a wheelbase of 116 inches.

St. Louis, Mo.

GUSTAVE LYNCH.

This trouble is far from being unique, as it is one of the commonest of tire troubles. It is due to the fact that the full braking strain, or nearly all of it, falls upon one wheel, the reason being that the equalizing mechanism is not properly adjusted. You have not mentioned the make and model of the car, so that it is impossible to give specific instructions as to how to proceed to make the required adjustment. At some point on the linkage there will be a right and left handed screw, turn-buckle, wingnut or other device to regulate the equalizing bar so that the pull on both brakes will be the same. The arrangement of these differs on cars of different makes, but they all have some provision for allowing both brakes to take up an equal strain. It is easy to see how the tires on the wheel which is alone affected by the brake will quickly wear, but there is still another possible cause for this rapid wear on the right rear tire. If you have been loading the car unequally, so that a large part of the weight falls on this particular wheel, the wear will be greater on this tire than on any other. The fact that the car, in traveling along the road, has the left wheels on the smooth part of the road and the right wheels in the ruts will also cause an

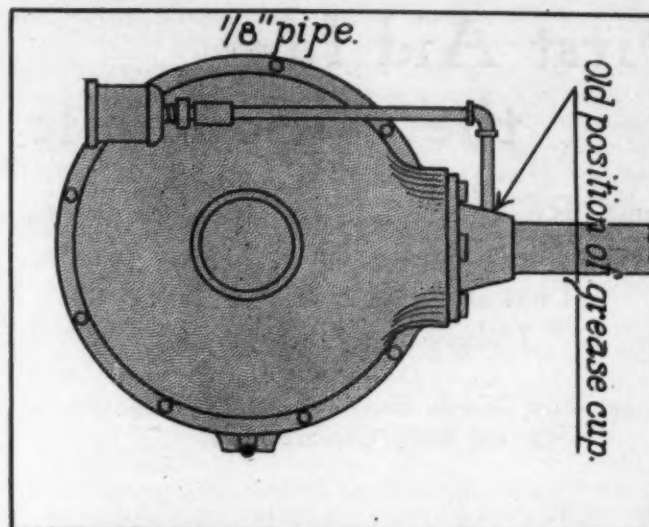


Fig. 2—Showing accessibility of grease cup when relocated

increased amount of wear on this tire. Of course, this occurs only when the car is used in the country where the roads are not smooth on the sides as well as in the center and as the car has to keep to the right the wear falls on the right tires.

Derivation of A. L. A. M. Formula

Editor THE AUTOMOBILE:—Would you kindly tell me on what D²N

the A. L. A. M. formula — is based? I have never been able

2.5

to find out how this formula was derived and I would be very glad if you would tell me through your Letters Answered and Discussed columns.

Davenport, Iowa.

INTERESTED.

The A. L. A. M. formula, which has been much discussed as regards its correctness as applied to modern motors, especially those of the long-stroke variety, was derived in the following manner:

The indicated horsepower of a four-cycle single-cylinder motor is equal to the mean effective pressure P times the area of the piston A , in square inches, times 1-4 the piston speed S in feet per minute and the result is divided by 33,000. The factor 1-4 holds good for the four-cycle motor since the power is only exerted on every fourth stroke or once for every two revolutions. This

$P \times A \times S$

is expressed in equation form thus: I.H.P. = $\frac{P \times A \times S}{33,000}$. Multi-

$4 \times 33,000$

plying this by the number of cylinders N of the motor and further taking into consideration E , the mechanical efficiency of the motor, the formula for B.H.P. becomes: B.H.P. = $\frac{P \times A \times S \times N \times E}{33,000 \times 4}$

The A. L. A. M. assumed that the motor will

$33,000 \times 4$

deliver its rated horsepower at a piston speed of 1000 feet per minute and that the mean effective pressure in the cylinder of the automobile motor will be 90 pounds to the square inch. It also assumed that the mechanical efficiency of the motor will be somewhere in the neighborhood of 75 per cent and will average that figure. Substituting these values in the formula for brake horsepower and also substituting for A its equivalent $.7854 D^2$, the

$90 \times .7854 D^2 \times 1000 \times N \times .75$

equation reads: B.H.P. = $\frac{90 \times .7854 D^2 \times 1000 \times N \times .75}{33,000 \times 4}$. Per-

$33,000 \times 4$

forming the indicated operations, the formula is simplified to its

$D^2 N$

final form B.H.P. = $\frac{D^2 N}{2.489}$, or, in round numbers, the denominator may be called 2.5.

First Aid for the Automobile

Some Road Breakdowns and How to Remedy Them—Temporary Repairs That Will Overcome Long Delays and Annoyance

Curing Seized Pistons, Broken Springs, Slipping Clutches and Leaky Gasoline Lines

ALL the old saws regarding an ounce of prevention being worth a pound of cure and the proverbial stitch in time that saves eight others fall flat on the ears of the automobilist who, with a sinking heart, allows his car to coast easily to the side of the road preparatory to rolling up his sleeves and starting to work. It is then that the man who knows his car will reap the benefit of his study, and it is then that the self-confidence which is half the battle will put the tourist in a state of mind in which he will be able to work more to the point and save himself much unnecessary worry and labor. The man who knows his car throughout is in a far better position to cope with trouble when it arises than he who is not so familiar with the details of its construction. We are not all old motorists, however, and a few suggestions as to how to handle some of the more common brands of breakdowns are not out of place.

Forgetfulness or carelessness, whichever one may wish to call it, is responsible for the greatest number of roadside breakdowns. Some cars go through seasons of use without the slightest mechanical trouble, while others scarcely make a trip without having the annoyance of some petty trouble which renders a stop necessary. Of all the results of carelessness the neglect of the lubricating system brings forth the most serious consequences. If the ignition system of a car is out of order, the car will misfire and stop. If the gasoline line leaks, the fluid will leak away and the car will stop. In either of these cases no damage is done to the mechanism and there are no bad after-effects after the damage is once repaired. When the oiling system is neglected, however, the motor is subjected to the risk of permanent damage. If this fact were well remembered it would save 75 per cent. of the repair shop bills of the motoring world, for repairmen all agree that this is about the percentage of trouble that is caused in this way.

Assuming that all the good advice which has been handed out to the automobile public for the last few years has been overlooked and the car is standing in the road with a seized piston, for instance, the question becomes, "What shall I do now?" This sort of accident does not always occur when near a source of help, so that the repair must be independent of outside assistance. The first thing to remember is never to pour water on a hot bearing in an automobile. This has been done on many occasions, but the results are often disastrous. Remove the spark plugs and pour in a cupful of cylinder oil as shown in Fig. 1.

Overcoming a Seized Piston

Let the car stand a half-hour or until cool and then give a quick jerk on the starting crank with spark off and all the release cocks open. Do not be alarmed if the crank refuses to turn under a slight pull as it will generally take a quick, hard jerk to free the piston. If you have any kerosene on the car and the piston is very tight, the addition of the kerosene will tend to free the piston more quickly. Some people recommend the use of an equal mixture of kerosene and cylinder oil for freeing the piston, while others state that it is bad to use it at all.

However, if the motorist will use the cylinder oil and then, if the piston is still stuck after waiting for a half-hour or so for the motor to cool off, introduce some kerosene and let it work its way down around the piston, he will be on the safe side.

Next to seized pistons the worst thing that can happen to the motor that is running hot is to burn out a bearing. It has often happened to a car going at high speed that the lower connecting-rod bearing will be burnt out. As a result, this bearing will first tend to seize until finally the cap will be literally torn from the bearing, leaving the connecting rod to hang free. At the next revolution the crank will hit the lower end of the connecting-rod and throw it against the side of the crankcase. It has often happened that the crank has been knocked right through the wall of

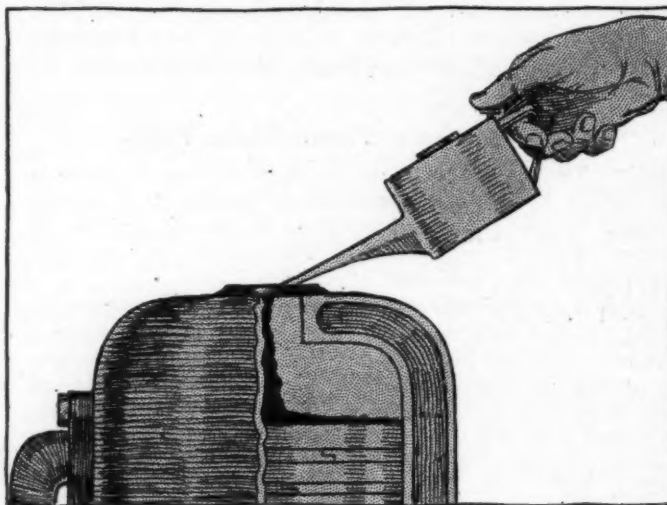


Fig. 1—Oil, not water, should be poured on the seized piston

the crankcase owing to a blow of the crank. Before damage to this extent happens it is possible to catch it and prevent the trouble from developing. A groaning sound will be given forth by the motor. When this is heard the car must be stopped at once. All the bearings should then be felt, and, if unusually hot, oil should be poured over them in the same manner as was recommended for the seized piston.

Came Home on Three Cylinders

A babbitt-lined bearing will often run. The metal has a low melting temperature and this is reached when the bearing becomes too hot. One automobilist not long ago noticed that his motor was behaving strangely and immediately stopped the car. On removing the inspection cover of the crankcase, he noticed that one of the lower connecting-rod bearings had started to run. Rather than attempt to go any further with the car in that condition, he removed the piston and connecting-rod and proceeded home on the other three cylinders. No further damage was done to the bearing which had merely to be relined to put it in first class condition again. It involved some trouble to do all this on the road, but the extensive repair bill that might have been the consequence of carelessness was saved and this was worth the hour's trouble on the road. This is where the accessibility of the car comes in. This same job may take anywhere from 3-4 hour to 4 hours on cars of different make and design and yet the minimum time could easily be made to apply to any motor by properly designing the crankcase.

Boiling cooling water is one of the most common of road occurrences and while it is not serious, it might lead to worse things. Many cars will have the cooling water boiling every half hour or sometimes even less when traveling in a mountainous country. The only cure for this is, of course, to fill the radiator. A tip which comes from a man who is experienced in mountain touring may be of use. Instead of merely putting enough water in the radiator to fill it, the hot water should be entirely drained out

and the radiator filled with fresh, cool water so that it will take longer to heat it up to boiling temperature. Heating is generally due to a slipping fan-belt or other trouble of that nature. One car which was used extensively for touring through Pennsylvania gave the owner much annoyance by having the fan-bracket slip causing the fan to hit the radiator. The fan was broken so that it was useless and the motor, being driven without the fan, overheated rapidly in the mountainous country, although on level ground it was all right. This car was nursed along by literally filling the crankcase with oil. This is a wise precaution and one which is recommended should such a mishap befall a car in hilly country.

Leaving the field of troubles which may be caused by neglecting the lubrication mention may well be made of a few of the breakdowns which are caused by the wearing out of parts or through other causes of like nature. A broken valve spring is a case in point. The natural tendency of a motorist who discovers that a part is broken is to throw away the pieces. In this case, however, it is wrong to do so as by slipping a metal washer between the two parts of the broken spring, it will generally be possible to get home. The washer is slipped in place as shown at 2, Fig. 2. This prevents the broken ends from passing each other and makes the two parts act as a single spring.

Bolstered Up Broken Springs

Another method of repairing a broken spring is shown at 1, Fig. 2. This is by the use of a piece of gas-pipe and the washer. The gas-pipe supports the washer on one side while the spring holds it upon the other. The spring is apt to be weak when repaired in this manner but it will take the car home, at least, which is the most important consideration in this case.

The valve spring is not the only spring on the car which has been known to break. A loose spring clip will often be responsible for a broken semi-elliptic or three-quarter elliptic spring. This

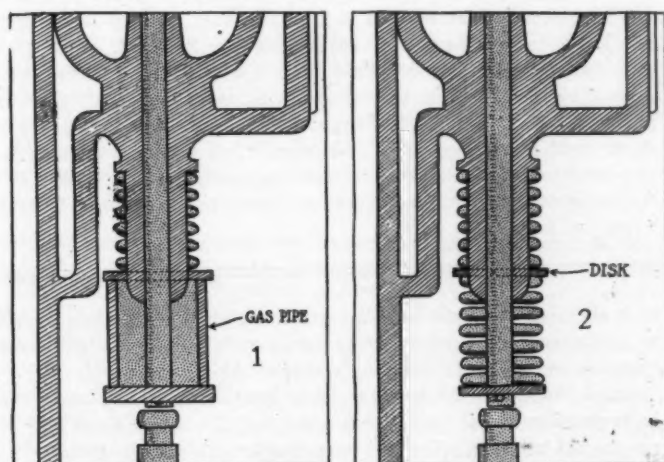


Fig. 2—Two ways of repairing a broken valve spring

is a breakdown which will necessitate a roadside repair in order that the car can be taken home at all. There are two ways of making an emergency repair on a broken spring. The safest way is to secure some pieces of plank from a fence or other source and break them up into strips and, after jacking the car up so that all the weight is taken off the broken spring, block up the spring-reach. The spring is first put back in place and then the strips of wood are laid on the spring, one upon the other, until the space between the spring and the spring-reach is completely filled in. Rope, straps or strong cord may be used for tying the pieces of plank in place. The jack is then removed and the car can be driven slowly to a garage or other place where a permanent repair can be made.

Springs are often repaired on the road in the manner shown in Fig. 3. While this method may be used it is not so good as that just described. A piece of metal is placed over the broken spring

and tightly bound in place. The binding must be extraordinarily tight to make the repair will be efficient. Besides these two ways of repairing springs the only other way which may be readily used by an amateur driver is that in which a regular emergency spring repairer is used. These are for sale by all supply houses and are very good. It must be remembered that nine-tenths of all the spring fractures on the road are due to loose spring clips. If this advice is forgotten and the spring breaks, the method of repair as first described is the best possible, unless, of course, emergency spring repairers are used.

Remedying Slipping Clutch

One of the most annoying troubles the automobilist can have in a hilly country is a slipping clutch. In the leather-faced cone variety, it is generally the fault of the owner of the car in that he has not kept his leather in good condition. The surface will oftentimes become covered with oil and in that case the trouble is readily cured. A pint of gasoline poured over the leather while the clutch is disengaged will effectually dry out the leather and restore it to good condition. Many recommend fuller's earth, which is very good, perhaps better than the gasoline, but there are not many tourists who care to devote any of their precious space to the carrying of fuller's earth. If the clutch trouble develops because the spring is too weak, the tension should be increased by turning the nut provided for that purpose. The particular case which furnishes the greatest annoyance, however, is when the surface of the leather is pressed tightly against the female, or flywheel member, of the cone clutch and yet it will not grip. This is due to the poor condition of the leather which has become worn. A road repair which will enable the tourist to take his car to a garage and have the leather replaced is shown in Fig. 4. It consists merely in driving about four very thin wedge-shaped strips of wood beneath the leather.

If the tourist is alone while making this repair he will have to block the clutch out. This is accomplished by putting a prop between the clutch pedal and the bottom of the front seat. If two are traveling, one can hold the pedal down while the other drives in the wedges. The clutch is generally rendered accessible by lifting the front floor-board of the car. One wedge can be driven immediately. The car should then be pushed ahead for a short distance until the male member of the clutch has made a quarter turn, when the next wedge can be driven. The same method of procedure should be used for the next two wedges. The main thing to remember is that the wedges should be very thin. If this precaution is not observed there will be trouble in disengaging the clutch and in stopping the car.

Apropos of touring in hilly country, an occurrence that is closely allied to a breakdown may be mentioned. When climbing a steep hill, if the supply of gasoline in the tank is low, the feed to the carburetor will be uphill. In this case the motor will use the gasoline in the carburetor and then stop. A method which was successfully employed on at least one such occasion may be described in that the hill was a long one and backing would have

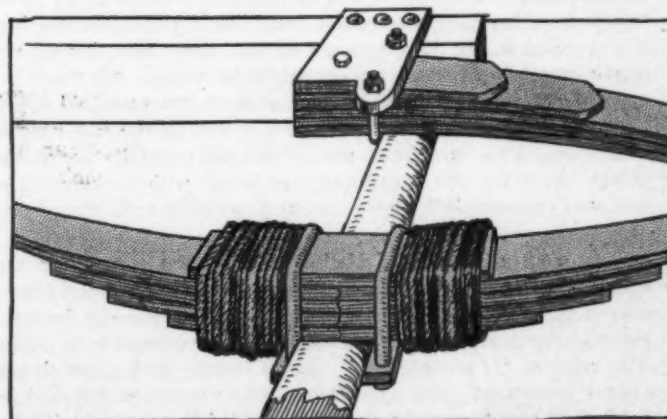


Fig. 3—A spring repair which is not always successful

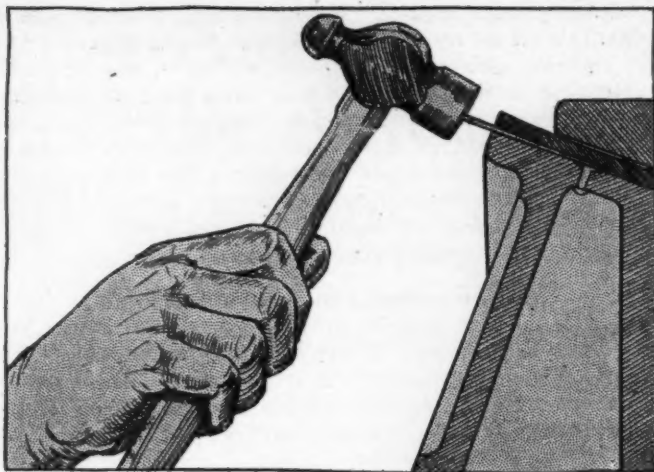


Fig. 4—Wedging the leather on a slipping cone clutch

been tedious work. The gasoline line between the carbureter and the tank was closed by turning the cock generally located near the carbureter. A small can was then filled with gasoline from the drain cock at the bottom of the tank and poured into the float-chamber of the carbureter. The car then proceeded until this was used up, when the supply was renewed. One filling of the carbureter was more than sufficient to take this particular car uphill a distance of about a quarter of a mile. If it is impossible to pour the gasoline into the carbureter the gasoline could be syphoned from the can to the carbureter. The tubing of the lamp could be disconnected and used as a syphon tube. The latter has been done in cases where the supply of gasoline was failing although for the mere climbing of a hill it would be better to back up unless the hill is very long.

The use of insulation tape for emergency repairs is in many instances invaluable. One of the purposes for which it is often called into use is shown in Fig. 5, where a quick repair to a leaky gasoline line is depicted. A leak in the line itself is rare, most of the troubles which develop in this direction taking place in the joints in the piping. The joints can be repaired just as well as any other part of the piping with winding of this nature. Insulation tape has been used with success to repair even greater troubles than these. A case which was noticed some time ago in which a rapid repair was made with insulating tape may prove of interest.

Crack in Intake Manifold

A new motor which at first developed its full rated power became weaker and weaker the more it was used and, although the motor did not stop, it lost enough power to cause considerable annoyance until finally it stopped short on a steep hill near a small village. This necessitated immediate action, although the owner of the car, being a new motorist, had searched in vain for the trouble while the car was in his garage. At first at a loss as to where to look for the trouble, since his former searches had not revealed it, the idea struck him that the connection of the intake manifold to the cylinders might be faulty. He took the manifold off and found a decided crack in the manifold itself. The crack had been concealed because it was on the side nearest the motor. Procuring some putty from the general store at the village, the crack was sealed and then bound with the tape. The cure was remarkably effective and held perfectly until the permanent repair was made.

Outside of tape, one of the most important things for the automobilist to take with him is wire. Many minor breakdowns caused by the loss of a nut or other similar cause can be temporarily cured with a wire winding which would enable an otherwise crippled car to get home. Several extra spark-plugs should always be carried along as without these the motorist would be helpless if his other plugs should be spoiled in any way. Where there are belts, such as, for instance, the dynamo driving belts

Field of the Electric Car

British Engineer Claims Its Superiority for Certain Classes of Heavy Work

A paper by Bertram D. Fox, read at a meeting of the Junior Institute of Engineers, summed up the adverse points affecting the limitation of the gasoline engine for heavy vehicle use, compared with the more promising scope for the electric motor driven by a feeder wire. The electric motor was unrivalled in coping with abnormal traffic (stop and start and acceleration) demands, for it had the unique characteristic of producing at low speeds, or at rest, a torque far in excess of its torque at full speed. In this respect all other forms of motor power were, in comparison, at a disadvantage. For instance, a gasoline engine developed a practically uniform torque at all speeds, and if operated through a gear of fixed ratio, designed for full-speed running of the vehicle, it would be so far incapable of imparting the necessary acceleration that it would be unable even to start up the vehicle from rest. For this reason the gasoline engine was incapable of satisfying the requirements of tramway service to the extent that was possible with electric power. In fact, the designers of gasoline-driven vehicles had been forced to adopt a compromise between acceleration and ability to climb hills on the one hand and the excessive size and cost of the engine on the other.

Moreover, the complicated mechanical devices which the designers of gasoline-driven vehicles were compelled to use were subjected to a service so severe and exacting that the cost of maintenance and replacements became a formidable item in the working expenses. Referring to the results of the two pioneer rail-less electric installations in Great Britain, viz., at Leeds and Bradford, the equipment of both being the R. E. T. system, he said that the working cost had been less than the working expenses of the trams in the same towns, and barely half that of gasoline motor buses working under similar condition, while as regards absence of smell, vibration, trustworthiness, acceleration without shock and other factors concerned with travel comfort and cost, there could be no comparison.—*Motor Trader* (England).

that are used on some cars, an extra one should be taken along, as sometimes breakdowns occur which defy the ingenuity of the motorist unless he be properly equipped with spare parts.

Breakdowns caused by tires have been exhaustively taken up in recent issues of THE AUTOMOBILE and the attentive reader is no doubt familiar with the operations. A few points may be mentioned here, however, as deserving of special emphasis in that, if observed, they will save the tourist much trouble on the road. In the first place, a plentiful supply of inner tubes should always be on hand. When a blowout occurs and it is found necessary to replace the inner tube, the driver should be careful to run his hand around the inside of the casing before he puts the new tube in place so that anything within the casing that could possibly cut the tube will be removed. Plenty of powdered soapstone or graphite powder should be placed on the tubes.

If a tire breakdown is encountered far from town and there are no extra inner tubes available, the owner is in a rather sad position, as to proceed on a deflated tire for a distance of 2 or 3 miles will effectually put an end to the career of that particular casing. But if the tourist happens to have a tarpaulin or any kind of a cover along with him, this can be stuffed inside the casing and will fill it so that there will be no rim-cutting. One automobilist states that he has twice saved a tire casing, or at least the rim, by winding a rope about the rim to take the place of a tire while he drove the car slowly to a garage.

Wisdom from the Maker

Concerning Truck Guarantees, Suitable Vehicles and Speed Governors

THE buyer of a motor truck has every advantage in the way of guarantees. The present extremely high costs of motor truck manufacture are brought about largely by the unreasonable demands made by owners and operators. This, of course, is not applicable to all users, for there have always been some reasonable operators, and many are beginning to realize the advantages to be derived from dealing with the truck manufacturer who is producing a first-class truck and who, by good business methods, is making a fair return on his investment and will, therefore, stay in business.

No first-class manufacturer of motor trucks will refuse to replace a defective part, if that part be sent to him for inspection, irrespective of any guarantee he may have placed on it.

The Commercial Vehicle Convention in March, after careful consideration of the situation, recommended a 90-day guarantee. This does not mean that no maker will replace any defective part which may show up 6 months after delivery, but was adopted for the protection of the manufacturer against unscrupulous users. The time will come when guarantees will be eliminated as unnecessary. Until then, the manufacturer should insist upon the user paying, at least, for his education instead of himself continually standing the brunt of it and paying for it.

Experience has shown that one of the great troubles has been to convince the buyer of the type of truck he should purchase. If a study of his business showed conclusively to the manufacturer that the buyer should install 2-ton trucks and the buyer absolutely insisted that 1-ton trucks were of ample size, the manufacturer, rather than lose the business, has sold them, with disastrous results. The blame for all failures was invariably placed upon the manufacturer. The user claimed that the trucks were too light and would not stand the work, when the truth is they were overloaded. Had he installed the heavier model the user would have had satisfaction from the start.

The manufacturer lays down certain rules of proper care and specifies carrying capacities and maximum speed limits, which if exceeded will result in withdrawal of the guarantee. No atten-

Test for Wheel Alignment—When wheels are out of line it may be well for the owner of the car to test for this occasionally. This can best be done by measuring the distance between the two front tires at a certain height above the ground. The wheels are then turned about and the distances measured again. If the results obtained are found to vary, the wheels are out of alignment and the cause should be found at once if the tire bills are to be kept to a minimum. A slight collision will often bend the front axle or the steering-knuckle to some extent and this will generally be found to be the reason for the occurrence of the trouble. When the car leaves the factory it is always put into good condition and one of the points most carefully watched is the alignment of the wheels. The rear wheels do not give trouble in this manner very often as the structure is so stiff that this is guarded against. What will occasionally happen, however, on a light car, will be that an overload causes the rear axle to sag. Overloading should be guarded against and the car should not be loaded above the designed capacity, because if it should strike an obstruction the impact due to the heavy weight which the car is carrying will often cause a sag that will be disastrous to the rear wheel bearings and, in fact, to the whole rear axle construction. A sagging axle may be detected by the fact that the top of the rear tires will be closer together than the bottom. When this is the case it may be immediately taken for a warning.

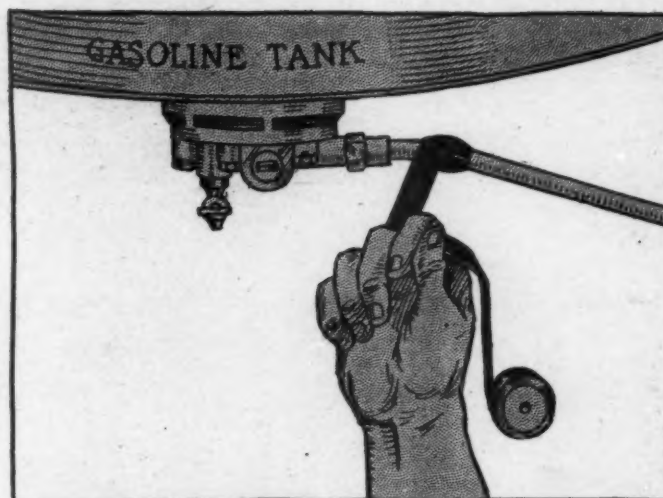


Fig. 5—Tape is successfully used for stopping gasoline leaks

tion is paid to these, but if the manufacturer does not help the user out of the trouble he has gotten himself into, he threatens to trade his trucks for some other make.

Some of the highest costs of truck manufacture are brought about because the truck maker has not only to provide the finished truck, but must bear all the burden of expense in teaching the operators, oftentimes even providing the drivers. He must either become an expert on transportation or hire one and furnish his services free of cost to his customer, who wants an insurance against any possible loss and asks for all sorts of guarantees which are absurd on their face and which he does not get in any other line of business.

Now, why should not the purchaser, who is to be the great gainer, be willing to pay at least for his education? There is nothing that can be done by horses in merchandise delivery that cannot be done faster and more economically by motor trucks, but as the trucks should be handled and treated in a different way from horses, the motor truck manufacturer should certainly be protected if the purchaser insists on handling the truck in his own way.

Speed governors should be installed on all trucks. It is important that they should be accurate and really govern, holding the number of revolutions of the motor down to a certain given point. However, the governor will not control a truck coasting down long grades and it can often be tampered with by experts without the knowledge of the manufacturer. To overcome this every truck should be equipped with a speedometer that has a maximum hand or recorder, which should be sealed or locked and the key kept by the owner. This will show the highest speed attained at any time with the truck. If a fine were charged against the driver for exceeding a certain speed limit, and dismissal were to follow the second fine, 90 per cent. of the present truck troubles would disappear.

Last of all, tire manufacturers should take an absolute stand against overloading and report every case that comes to their attention to the owner of the truck and to the manufacturer. Above all, they should insist on the use of tires of sufficient size for the load capacity, which they can back up with their guarantees.

B. A. GRAMM, Gramm Motor Truck Company.

A MILITARY motor car has been patented by the Krupp Company, of Essen, Germany, the vehicle having been designed to carry a quick-firing gun for use in military operations. The platform is constructed along special lines. The frame of the automobile is so arranged as to accommodate a pivot-stand, which is firmly attached. Rotatably mounted in the pivot-stand is a fork-shaped upper carriage, movable by means of a vertical pivot pin and ball bearings. The gun platform is equipped with a shield.

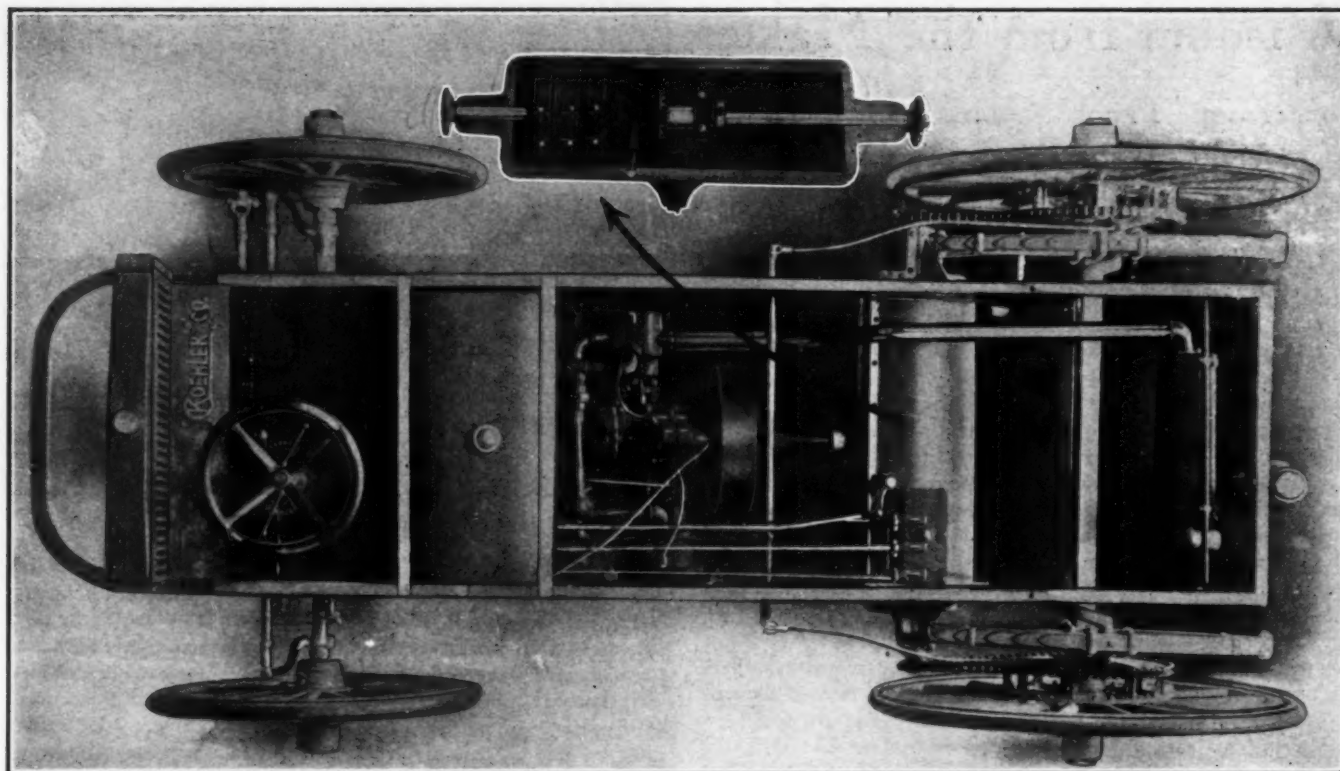


Fig. 1—Plan view of the chassis of the Koehler commercial car, with detail of the planetary gearset

Koehler Commercial Car

Details of a Light Wagon with Optional Types of Body at a Moderate Price

A WAGON with a carrying capacity of 1,600 pounds and selling at a moderate price has been put upon the market by the H. J. Koehler Company, New York City. The motor is of the horizontal, two-cylinder opposed type having a rated horsepower of from 22 to 24. The crankshaft has a diameter of 1 7/8 inches and the bearings are lined with babbit in bronze boxes. The valves are 2 1/4 inches in diameter and adjustable for wear. The drop forging crankshaft terminates in a flange 5 inches in diameter to which is bolted the flywheel.

One of the novel features of the motor is the lubricating system. A positively driven pump sends two jets of oil through independent leads. The pump is driven through a vertical shaft and gears and sends the oil through the copper leads with sufficient force to carry a stream over the two crankpin bearings and into a groove in each connecting-rod. The remaining bearings are oiled by the spray created by the rapidly revolving cranks.

Ignition is effected by a Bosch high-tension system, the magneto being located at the top of the motor, where it is readily accessible by lifting the flooring of the car. The gears which drive the motor are incased so that they are protected from the dust of the road and are hence given a longer life than would be the case were they exposed to the grit.

A feature of this truck which is worthy of note is the arrangement of the drive.

The motor is in a direct line with the jackshaft and immediately connected thereto by a universal joint in spite of the fact that this is a line connection. The drive is taken up from the jackshaft and planetary gearset through the chain sprockets. The gearset which is driven by bevel gearing runs in an oil bath being contained in a large housing. The gears are of chrome nickel steel running on phosphor bronze bearings.

The service brakes were at first located on the jackshaft while the emergency brakes were on the rear wheels. A change has been made here, however, and both sets have been put on the rear wheels. The other features of the control are the location of the steering wheel which is on the left side of the car, the emergency brake lever at the drivers' right, and the gear changes by pedal. There are three pedals, for reverse, low speed and the service brakes.

The frame is of channel section, 3 inches deep and 1 1/2 inches wide. The side members of the frame are continued forward, forming a basis of support for the thermo-syphon radiator which is carried upon a secondary spring support to prevent harm from vibrations. The side members of the frame are connected by a metal floor plate of substantial design in which are incorporated devices for supporting the control features of the car.

The front and rear axles are each square in section and are forgings of 40 per cent. carbon steel. The front axle carries the steering knuckle yokes.

The wheelbase of the car is 85 inches while the tires are of 2-inch solid rubber all around. The tread is the standard 56 inches. The weight of the car is about 2,000 pounds, varying with the body equipment. A speed of 16 miles per hour is given on direct drive with a minimum of 4 miles. The body equipment is optional and the price depends upon it. Three types are furnished by the makers, namely: panel, canvas side and open flare board.



Fig. 2—Open flare board type of Koehler commercial car

Among the New Publications

Vade Mecum for Automobile Engineering—Elementary Study of Explosive Motors

PRACTICAL PROBLEMS FOR VEHICLE DRAFTSMEN AND MECHANICS. By R. B. Birge and Hugh M. Sargent. Published by Ware Bros. Company, of Philadelphia. 72 pages, 9 1/2 by 12 inches, with many diagrams and mechanical drawings. Price, \$2.00.

This book is an authoritative treatise on vehicle drafting, and should prove a most valuable contribution to the literature of the vehicle industry. All the drafting and designing contained in the book was done by the authors, who have had a wide experience with the subject with which they deal. The subject matter of the book covers a thorough explanation of geometry so far as it relates to the drafting of carriage and automobile bodies. This leads to discussions and plain directions as to how to lay out sweeps or curves, ovals, and the application of the proportional triangle for laying out twisted or winding surfaces. The construction of joints is taken up, the laying out of proportional corners, the finding of the dihedral angle, and so on. Many features of vehicle body design are carefully explained and illustrated by drawings, among which the construction of coupé pillars, door frames, glass frames, wheel houses, mud guards and seat panels are covered. Separate chapters are devoted to perspective drawings of vehicles and coloring of automobile and carriage drawings.

ELEMENTARY INTERNAL COMBUSTION ENGINES, by J. W. Kershaw, M.Sc.B., Eng. Published by Longmans, Green & Co., New York City. 174 (5 x 7 1/2) pages with 117 illustrations. Price, 90 cents.

This volume will serve as an elementary text-book for the purpose of studying gas engines and producers. The principles involved in the construction of gas and oil engines both large and small are touched upon, the explanations being of such an elementary nature that they are readily understood by anyone grounded in the primary principles of mathematics and physics. The theoretical end of the subject has been considered briefly in a chapter on calorific power and also under the head of engine efficiency and the theory of gas producers. In the appendix of the work a study of the Bosch high-tension magneto has been taken up with the idea of pointing out along what lines the latest developments in ignition have been made.

CYCLOPEDIA OF AUTOMOBILE ENGINEERING. Prepared by a staff of automobile experts, consulting engineers and designers. Published by the American School of Correspondence, Chicago, Ill. In four volumes, totaling 1400 pages. 1200 illustrations. Bound in red cloth and leather.

This illustrated work, which has just appeared, is a most important and timely contribution to the literature of the modern motor vehicle and the aeroplane. The automobile and the aeroplane have developed so rapidly that the men who have most studied them from an engineering standpoint and who are best informed about them have not been allowed the time to place upon paper the facts with which they are familiar, with the result that there is a dearth of authoritative literature relating to these highly specialized fields of engineering. The authors of this new encyclopedia have striven to meet this situation adequately, and they have succeeded in producing a work of unquestionable worth. Commencing with volume I there are introduced the fundamentals of internal-combustion motor operation with explanations of the cycles, the essential mechanical elements, the conditions of efficiency, etc. Then follows a section on gasoline automobiles in which the design and requirements of the modern motor car are taken up. Details of design, accurate specialized information, and the parts and essentials of which the complete automobile is constituted are considered. Electric and steam automobiles are exhaustively treated, as well as the types of automobiles best suited for all

Calendar of Coming Events

What the Months Ahead Have in Store for the Sport-Loving Automobilist

Shows, Conventions, Etc.

- June 5.....New York City, Annual Orphans' Day.
- June 17-22.....Milwaukee, Wis., Convention and First Annual Show, National Gas Engine Association.
- June 27-29.....Detroit, Mich., Summer Meeting of the Society of Automobile Engineers.
- July 10-20.....Winnipeg, Man., Canadian Industrial Exhibition.
- July 12-14.....Logan, Utah, Fourth Annual Intermountain Good Road Convention.
- July 22-26.....Detroit, Mich., Cadillac Week.
- Sept. 23-Oct. 3.....New York City, Rubber Show, Grand Central Palace.
- Jan. 11-25, 1913...New York City, Thirteenth Annual Show, Madison Square Garden and Grand Central Palace, Automobile Board of Trade.

Race Meets, Runs, Hill Climbs, Etc.

- May 30.....Indianapolis, Ind., Speedway, 500-mile race.
- May 30.....Salem, N. H., Track Races, Rockingham Park.
- JunePortland, Me., Hill Climb, Maine Automobile Association.
- JuneSt. Louis, Mo., Reliability Run, Automobile Club of St. Louis.
- June 1.....Philadelphia, Second Annual Contest for the Fletcher Cup, Automobile Club of Philadelphia.
- June 6.....Washington, D. C., Reliability Run, Washington Post.
- June 8.....Narberth, Pa., Track Races, Quaker City Motor Club.
- June 20.....Algonquin, Ill., Annual Hill-Climb, Chicago Motor Club.
- June 20-22.....Portland, Me., Reliability Run, Pine Tree Motor Contest Association.
- July 3-5.....Belle Fourche, S. Dak., Second Annual Track Meet.
- July 4.....Petersburg, Ind., Track Meet.
- July 4.....Riverhead, L. I., Road Race.
- July 4-5.....Taylor, Tex., Track Meet, Taylor Automobile Club.
- July 4-6.....Old Orchard, Me., Beach Meet, Old Orchard Automobile Association.
- July 5-6.....Tacoma, Wash., Road Races, Tacoma Automobile Club and Tacoma Carnival Association.
- July 15.....Milwaukee, Wis., Reliability Run, Wisconsin State Automobile Association.
- Aug. 8-10.....Galveston, Tex., Beach Meet.
- Aug. 23-24.....Chicago, Ill., Commercial Vehicle Test, Chicago Motor Club.
- Sept. 2.....Indianapolis, Ind., Track Races, Speedway.
- Sept.Chicago, Ill., Commercial Vehicle Test, Chicago Motor Club.
- Oct. 7-11.....Chicago, Ill., Reliability Run, Chicago Motor Club.
- Oct. 12.....Salem, N. H., Track Meet, Rockingham Park.
- Nov. 6.....Shreveport, La., Track Meet, Shreveport Automobile Club.

Foreign

- June 15-23.....Vienna, Austria, International Tour, Austrian Automobile Club.
- June 25-26.....Dieppe, France, Grand Prix de France, Automobile Club de France.

purposes. Automobile driving is not forgotten. The commercial vehicle, motorcycle and motorboat each has its complete consideration in the work. Over half of volume III is devoted exclusively to the design, operation and care of the motor truck. Private garages and the repairs which may be undertaken therein are discussed in a section which should prove of special interest.

Aeronautics are treated exclusively in volume IV, and the information is of the very latest in this rapidly developing field of engineering.

KNOTS, SPLICES AND ROPE WORK, by A. Hyatt Verrill, Editor of Popular Science Department, *American Boy Magazine*. Published by Norman W. Henley Publishing Company, New York City. 102 (5 x 7) pages with 150 engravings. Price, 60 cents.

Every conceivable sort of knot, bend and hitch of practical use to anyone using rope for any purpose whatever has been taken up and full directions given as to the method of making these. For the automobilist this work is of no doubt limited interest unless he own a motorboat or has occasion to use rope for other purposes. The explanations are readily understood, while the illustrations are very clear.

HOUSE WIRING, by Thomas W. Poppe, E.E. Published by the Norman Henley Company, New York. 103 (4 1/2 x 6 1/2) pages with 74 original engravings. Price, 50 cents.

As an aid in the solution of puzzling wire problems this work should be valuable to the electrician, helper or apprentice. All the different up-to-date methods of installing electric light wiring are fully described and illustrated.



How Benjamin Franklin helps Boston's Chauffeurs

BOSTON, MASS, May 11—"Some arrangement should be made by the school committee, or by some of the institutions located in the city that get the benefits of fire, police and other protection to afford the chauffeurs in the city employ a chance to become more skilled in their work," said Mayor John F. Fitzgerald a short time ago. "The more they understand about motors and repairing them the less the city repair bills will be."

Within 24 hours the Mayor was notified that the city chauffeurs could take advantage of a series of courses established in the Franklin Union. Mayor Fitzgerald thereupon issued this edict:

"Any chauffeur employed by the city who hereafter seeks a raise in wages will not get any consideration if he has neglected to attend some of the courses now open to these employees, unless he can prove that his work is so arranged that he cannot spare the time."

This meant that the energetic driver seeking to better his position would get busy while the one content to run along in a rut would stay there. And as the city owns scores of cars now it was evident that the Mayor had in mind a future time when there would be a municipal garage where the cars could be housed and properly taken care of at a minimum cost. In fact, a municipal garage has already been outlined by Superintendent Louis K. Rourke, of the Public Works department.

As a result of this a number of the city drivers enrolled as students of the Franklin Union. This educational institute was founded from funds left by Benjamin Franklin, who provided that they should not be touched until a specific sum had been gathered together. This amount was reached a few years ago and after a lot of suggestions had been threshed out the Union was built at the corner of Berkely and Appleton streets and first opened a year ago.

Has Three Classes of Courses

The courses consist of mechanical studies and among them is one on gasoline motors that cannot be surpassed in a scientific school attached to a college. This motor department has its engines set up; lectures are given by professors from Tufts College, recognized as one of the leading Massachusetts institutions; practical work is carried on under their supervision; in fact, everything is arranged for the most thorough education on gasoline motor possible. Driving or handling cars is not included in the instruction.

The courses are divided into three classes. The first course includes 24 lessons in which the student is taught to fully understand the principles of two-cycle practice as applied to marine engines and four-cycle practice as applied to both automobile and marine work, together with a complete study of carbureters and the various types of ignition. The second year course includes 48 evenings or 24 Saturday afternoons in which the entire study for the times mentioned is devoted to gasoline engines from both a theoretical and practical standpoint.

In the third year course the student may specialize in any

branch desired either in class or private lessons at his own discretion. The cost of these various courses to those constituting the working men and boys are nominal and vary from \$4 to \$10 a course, which places them within the reach of any young man not able to afford the college privileges.

The courses as at present prescribed include three nights a week practical work with the alternate nights devoted to lectures, Saturday afternoons being spent in the laboratory.

The students have before them when in study all the machines necessary which are set up and in working order. When the pupil begins he is under the guidance of an instructor to whom he inquires for any information necessary in working out a point. Instruction sheets are furnished each student with questions, the more vital parts of which the student must fill in. The same sheet also contains a full description of the engine on which the student is about to work, with concise remarks regarding the manner of handling the engine once the student gets it in operation. The sheet also tells the student the principles of the engine on which he is working and then follows with questions pertaining to the same, so that after each lesson the student knows absolutely what he has accomplished and also has his sheets of instructions fully marked that he might study them later and retain them as reference lectures practically applied.

Fine Motor Study Equipment

A sample sheet such as is used is shown herewith and makes the fact apparent why the student fully understands what has been taught him. This system of instruction also impresses the facts upon the memory of the students.

JOHNSON FOUR-STROKE CYCLE—4-CYLINDER AUTOMOBILE ENGINE

Cylinder in pairs

Bore..... Stroke..... H.P..... at
..... R.P.M. Ignition..... spark
by three different systems (Independent)
..... Non-vibrating coil
..... magneto
..... carbureter pump

(SEE SPECIAL SHEETS ON WIRING)

The engine will operate only in a counter clockwise direction. Why? Inspect conditions for advance and retard of timer. Regulate cooling water to give about 150° F. Shut off water when engine is not running.

Do not let this engine race. It should not run over 1200 R.P.M. Check speed by use of speed counter. As you apply load open throttle and advance spark. Do not advance spark too far as to cause knocking.

You are working this engine to study the action of the four-stroke cycle principle. Suction, compression, firing, and exhaust. You should know why the spark must be retarded when you expect to start on the spark or switch. The timing of this engine is automatic. Be sure you understand it.

Study the wiring of the magneto, the connecting coil and the Atwater-Kent spark generator.

The equipment of the Franklin Union for the study of motors is most complete, and the education to be gained there in so far as engines are concerned may be judged by the following list:

- Six 2-stroke cycle, marine gasoline engines.
- Two 4-stroke cycle, marine gasoline engines.
- Two 4-stroke cycle, stationary type gas or gasoline engines.
- Six 4-stroke cycle, automatic engines.
- One 2-stroke cycle, stationary type kerosene engine.
- One 40-horsepower touring car used for instruction in taking down and assembling work.

These engines are installed in a manner that permits of complete testing as to horsepower, fuel efficiency, etc., while the carbureters and ignition are so set up as to be interchangeable and applicable to any of the engines. In this way the perfect study of principles as applied to all types of engines, carbureters, magnetos and other accessories is available and expounded to the students. Besides there is included all the necessary essentials for engine testing, there being a complete equipment of indicators, tachometers, water cooled brakes, fuel measuring tanks, etc.

The instruction in the laboratory is followed in a systematic manner. A posted list, or bulletin board, indicates the engine or work each class is to take up on each laboratory period. The men work in groups of two or three, on their assignments; it may be engine running, magneto setting, or whatever is their special point of study during that time; an instructor nevertheless accompanies each group, overseeing the work of the students, whether it happens to be wiring, or study in the sectional models of the carbureters or other accessories.

Lecture System Is Admirable

By teaching in this manner the student has actual study with the various types of engines, and the opportunity of noting minutely at all times the working of them under conditions when handled by the amateur, and also as developed under the proper instruction as advised by the instructor over him.

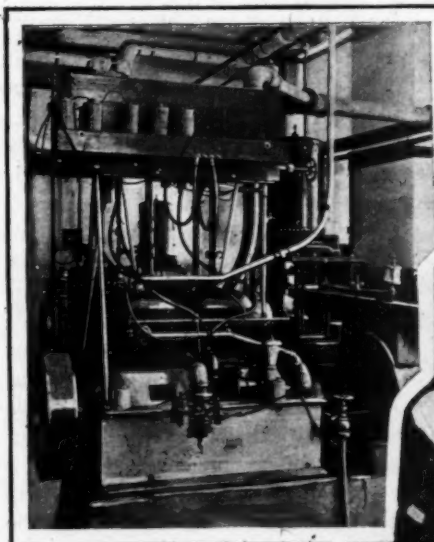
Again, the lecture work forms a most important element in all study, and as worked out at the Franklin Union the system is admirable as well as

unique. The student receives copies of the various lectures that cover the more important points. Lantern slides are used to show on a screen the topic or topics of the lecturer, there being between 300 and 400 slides used in the full course of lectures. Included in the lecture courses are visiting men from the leading colleges who talk on all the necessary topics bearing directly upon the work, while at the same time a number of these visiting professors specialize on some particular vital mechanical part. In this way the student has the services of the best-fitted men in the state colleges, who give their time in lecture work for the advancement of a cause that is unquestionably of great benefit to the working classes seeking advancement.

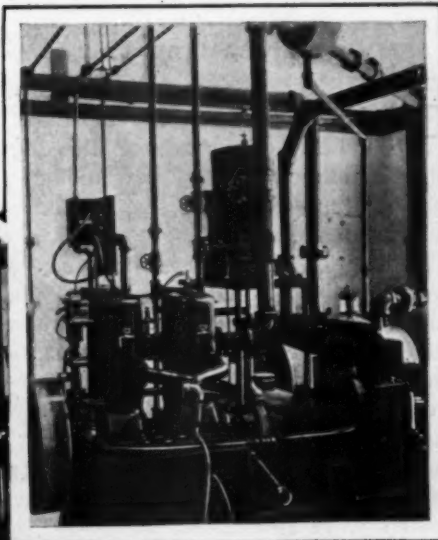
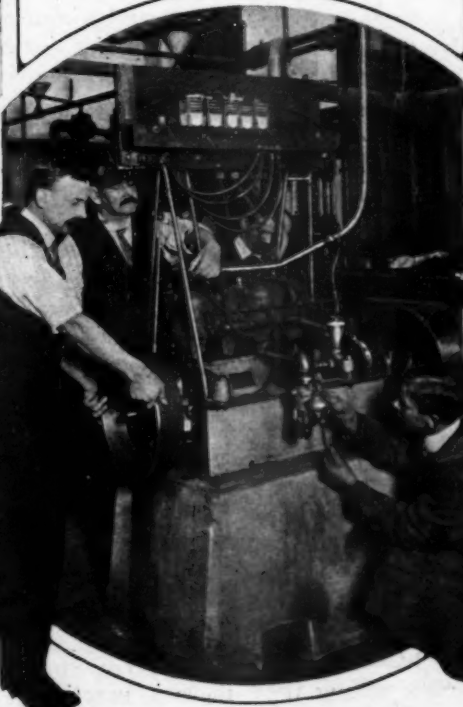
Many Occupations Represented

The present year shows an enrollment of 1,255 students. In this number there are represented 220 different occupations, that show these same students are employed by 492 different firms including all of the leading manufacturers, railroads, power companies, departments of city and state as well as a large enrollment from the Navy Yard at Charlestown. The average age of those attending the Union is 25.5 years, which shows what the younger element of the working classes are striving to do for themselves.

It did not take long for the value of the course to impress itself upon many young men seeking a knowledge of motors, nor for employees either. When this course was opened the motor school that was being conducted by the Boston Fire Department was dropped and now the men selected to handle the motor cars that are being installed in the service by the city, as well as the men who will drive other machines put in from time to time, are enrolled at the Union. The proficiency that they show during the courses will be the basis upon which they are promoted by Fire Commissioner Cole. While the fire department is entirely out of the hands of Mayor Fitzgerald, yet the Fire Commissioner reflects the ideas of the Mayor and so will carry out the plans of the city's chief executive. The Police Department has not yet adopted motor patrol wagons, but it is expected that these will come shortly as a result of the inadequacy of the horse-drawn vehicles now in service.



Not only automobile engines, but also marine and stationary gasoline motors and one stationary kerosene engine are included in the equipment. Thus the students are brought into direct contact with the motors, in groups of two or three, the instructor being careful to see that the practical work supplements the lectures



Franklin Union is especially well fitted for the study of gasoline motors as to construction, method of operation and making and correcting adjustments. Each motor is so set up that the various testing apparatuses may be readily applied without interfering in any way with the instructor or with the students' observation of the results

THE AUTOMOBILE

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The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly), May, 1902, Dealer and Repairman (monthly), October, 1903, and the Automobile Magazine (monthly), July, 1907.

Forecasting the 1913 Car

EVIDENCES of the 1913 car are already apparent. Although there was more or less of a mutual understanding among the big makers that the early announcements of new models a year ago would not be duplicated this season, there have been many rumors of what the engineers have to offer for 1913. The delay of announcements of next year's models until around July 1 is commendable. The months of May and June are big selling months; they are bigger selling months than ever this year because of the late spring, the floods in many parts of the country and the unsettled weather conditions. Had the 1913 types been launched in early May or late April it would have disconcerted the buyer who was waiting for his 1912 car and would have caused not a few to put off buying until the 1913 models were announced.

The 1913 car will be an interesting one. The old story, "we have not made any changes, our models are entirely satisfactory the way they are" will not be heard so generally this fall as it has been heard on previous years. There are many features that are engrossing the attention of heads of the engineering and sales departments of the big factories. Among these are left-hand steering with center control, non-poppet valve motors, self-starters, wire wheels, six-cylinder motors, mono-block motors, electric lighting and lower bodies. Last year witnessed an avalanche to self-starters among the

low and medium-priced cars. The makers held up their announcements until they had solved the self-starter problem, for the time being at least. The movement came as suddenly as a flash of lightning from a clear sky. True, one or two leading makers had used the self-starter for years, but the masses had passed it. Suddenly a turn came. One maker realized that to make the inroads into certain selling fields he required something additional in the free equipment line and the self-starter offered a cheap and very satisfactory solution. The other makers had to take it up, the landslide had started.

Last year the makers of high-priced cars did little on the self-starter question. They contended that it was but a fad and that they did not have to bother with it. Many of their cars were driven by chauffeurs and so the self-starter problem did not concern them. This lane has also had its turning and for 1913 not a few of the highest-priced builders will equip their cars with a self-starter mechanism. This was forecasted by makers of high-priced late models for this year, several of whom added a starter mechanism.

As stated in these pages some weeks ago, wire wheels are coming. Already one maker has announced them as an option for next year, other makers are studying the problem. At present it is impossible to say just what will be the progress made. For one thing, the expense is considerably greater than with wood wheels. This is particularly so with imported types. The merits of the wire wheel are becoming known throughout the country. There is scarcely a big factory in America that has not had an experimental car equipped with such wheels in use for months. Some have had them for a year. The progress of the wire wheel is such to-day that many have acknowledged that their appearance is not against them. In fact they like them as well as wood wheels.

Worm drive is exhibiting itself and now that certain American interests have obtained patent rights for the production of worms for rear axle construction in automobiles it is certain that not a few cars will use the worm and wheel instead of the bevel gear and pinion in the back axle for next year. The worm has been gradually introducing itself in this country. It was with us 5 or 6 years ago in one or two makes of gasoline trucks, but it was not pushed. Last year it was taken up by some makers of electric vehicles and in the truck field by half a dozen makers and for next season some of the big car makers will use it. Some are contemplating giving it as an option, but others are going to make it stock. The big trouble in the introduction of the worm in this country for back axle drive was the problem of whether it should be mounted above or below the axle. If the worm were mounted above the axle it would mean raising the body, and as we are in a period of low body construction this would be a big obstacle. On the other hand, were the worm mounted beneath the axle as it is generally placed abroad, the argument has been that there would not be clearance enough for American roads. As with most problems, it is gradually solving itself. Some makers of gasoline cars next year will mount the worm beneath the axle and will have over 9 inches clearance with 36-inch road wheels. This is enough. Mounting the worm beneath the axle permits of mounting the motor with the rear end slightly lower than the front end so that there is practically a straight line from the crankshaft

to the worm shaft, thereby increasing the efficiency of the transmission system by eliminating loss of power caused by an exaggerated angularity in the universal joints.

Left-side drive with center control is coming fast. Many thought that this scheme of control would never win out in America, but the missionary work done during the last 3 years has been so great that the victory is practically complete. This does not mean that every car in 1913 will have the steering wheel on the left side. Some makers will keep it on the right because to change will call for an entire redesigning of the motor. Such work is expensive, particularly so if the motor is also being used in truck service. Conservatism along this line will be shown by those makers who have a good trade and whose machines will sell in spite of the right side system. On the other hand, there are many concerns who are redesigning the motors at much expense in order to get the steering column on the left side. They consider that they must do it in order to maintain their position. With the steering column on the left it is possible to place the gearshift and brake levers in the

center. This is correct as it permits of mounting them on the gearbox as well as the clutch and brake pedals. In this position they are freed from strains set up due to warping or twisting of the frame side or cross-members. In the past, not a few makers have had to change the mounting of the cross shaft carrying the clutch pedal because clutch operation was interfered with by the frame twists. Mounting these levers and pedals on the gearbox is a better engineering job than having them outside of the frame members. It is much cheaper and is more dustproof.

In the matter of mounting pedals in the center of the car one or two makers are going a step further and are eliminating the emergency brake lever and using a ratchet-retained pedal instead. By doing this, the clutch and service brake are controlled by the same pedal. This leaves but one lever, namely that for gear-shifting, and, in order to get it out of the way as much as possible, it is being placed between the seat cushions of the front seat. There is a neutral space of 6 or 7 inches here which is ideal for the lever. In this way there is not a single obstruction to the driver's entrance and exit.

Wrong Use of Dealers' Tags

Pennsylvania State Highway Officials Find That Private Owners Are Operating Cars Under Dealers' Licenses

HARRISBURG, PA., May 27—Officials of the State Highway Department have discovered that the state is being swindled by a neat game by some of the automobile dealers, and they have at once commenced prosecutions to check it.

An automobile dealer in taking out a license as a dealer, gets a tag marked with an X which entitles him to use the machine in demonstrating its merits to intending purchasers and for no other purpose, and one tag will do for his entire stock in trade, but he must not use the tag on a vehicle that he uses for pleasure or hires to others for pleasure. It seems, however, that dealers have been evading this law. A dealer's license costs but \$5, while a tag for a pleasure machine or for hiring purposes costs from \$10 to \$15. In order to evade paying the higher license a number of people owning automobiles who are not dealers and also a number of dealers have been getting the lower-priced tags and using what purports to be a machine for sale, for hiring and pleasure purposes.

The State Highway Department learned of the scheme some time ago and has been quietly picking up offenders and asking them to step up to the magistrate's office and pay the fine for violation of the law, \$25, and at the same time take out the proper tag. About two hundred of these offenders have been discovered in Pittsburg, Philadelphia and the other big cities, where there are many dealers and autos hired for pleasure.

Intending Exhibitors Must Hurry

Demands for space at the 13th International Automobile Salon to be held in Paris December 7 to 22 should be sent on blanks provided by the administration of the exhibition, whose address is 51 Rue Pergolese, Paris. The demands for space must be on hand before July 1; those for blanks consequently earlier. No exhibits can be received at the Grand Palais, where the show will be held, until 3 days before the opening and none can be removed during the show. The exhibitors will this time share in 80 per cent. of the net profits of the enterprise, only 20 per cent. going to the organizing clubs and associations.

Motor Fire Rigs for Philly

Quaker City Has Awarded Contracts Which Will Eventually Result in Motorization of Entire Department

PHILADELPHIA, May 25—Contracts for the first instalment of motor fire apparatus to supplant horse-drawn equipment were awarded today by Director of Public Safety Porter and Assistant Director of Public Works Reed.

Two contracts were awarded, one calling for a combination hose wagon and ladder truck, to carry 2,100 feet of hose and attain a speed of 30 miles an hour; the second contract calls for two combination chemical engines and hose wagons, to attain an approximate speed of 35 miles an hour. The first contract was captured by the International Motor Company, at a cost of \$4,750; the second by James Boyd & Bros., at an outlay of \$4,993 each. Neither concern was the lowest bidder, but in each instance the plant and equipment of the bidder were taken into consideration in making the awards.

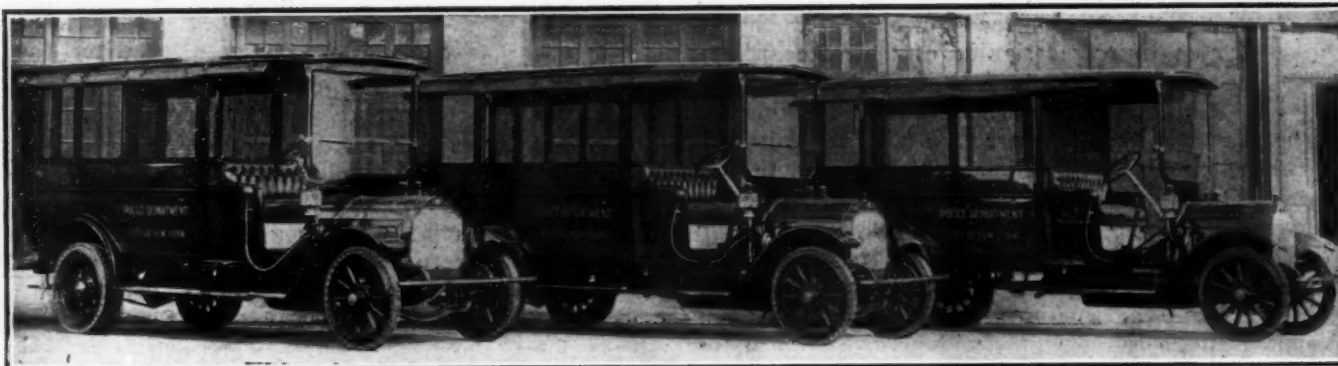
It is expected soon to advertise for bids for 11 high-speed cars, to be placed at the disposal of district engineers on the outskirts of the city.

Portland Motorizing Its Departments

PORTLAND, ORE., May 24—Expenditures for the operation and maintenance of automobiles by the city of Portland show that this city has virtually transformed its departments, insofar as means of conveyance is concerned.

It was but 4 years ago that the first city-owned automobile was purchased for the fire chief and which has been in constant use since and it is still considered as good as new. That machine was the envy of every department head. It started an epoch of automobile purchasing. Since then the city has bought 20. Nearly every department head has one; the water department has several, and the end is not yet, for the fire service is to install 10 or a dozen hose and chemical combination carts of the same pattern as the two that are now a part of the department. It is now proposed to build a municipal garage, equipped with sufficient force to attend to the upkeep of all city machines and where they all may be stored when not in use for public purposes.

News of the Week Condensed



Three new Garford patrol wagons recently put into commission by the police department of New York City

NEW YORK'S New Patrols—The three new Garford patrols purchased recently by the police department of New York City have been put into commission and are now in active service at stations 1, 2 and 13. Each vehicle has a capacity of 16 passengers, beside the driver, and all are fitted with cushion tires, single in front and dual in the rear. It is significant of the difference between the efficiency of horse-drawn and motor-driven vehicles that each patrol replaces three horse-drawn wagons.

'Bus Line in Indiana—A motor 'bus line between Nashville, Ind., and Columbus, Ind., has been established by William Musselman.

Ferry in Operation to Rye, N. Y.—The automobile ferry between Rye, N. Y., and Sea Cliff, L. I., is now in operation for the season. It has a capacity of thirty-five cars.

Credit to Edison Company—In THE AUTOMOBILE for May 23 the photograph used in connection with the article Chauffeuse-Chaperoning should have been credited to the New York Edison Company.

Milwaukee Truck in Chicago—The A. O. Smith Company, Milwaukee, Wis., has established a general sales office at 2328 Michigan avenue, Chicago, Ill., for the Smith Milwaukee truck. C. W. Babcock is manager.

R-C-H in Foreign Countries—The R-C-H line is handled in twenty-eight different countries. This representation is not limited to any one section, but spreads over every continent and in every leading country of the world.

Moon and Michigan in San Francisco—San Francisco is soon to have another automobile building. It will be the home of the Pan-American Motors Company, Northern California distributors of the Moon and Michigan cars.

Overland to Build in Chicago—Charles W. Price, the Overland representative in Chicago, Ill., has closed a deal for the erection of a new building at 2426-28 Michigan avenue. The lot is 54 by 178 feet and the 10-year lease involves something like \$125,000.

Peerless Water Heater Patented—The Peerless hot water automobile heater has recently been patented by Wilmot A. Gibbs of Spokane, Wash. It has been proven by actual test that the radiator will hold heat from 2 to 3 hours after the motor has stopped.

Associated Advertising Club's Parade—Three thousand

automobiles carrying almost 20,000 advertising men paraded in Dallas, Tex., last Monday in the monster automobile demonstration of the Dallas Convention of the Associated Advertising Clubs of America.

New Remy Service Stations—A new service station of the Remy Electric Company has been appointed in Buffalo, N. Y., the Frey Auto Supply Company being the connection. In Columbus, O., the Rogers Supply & Tire Company will be the Remy service station.

Battles Opens Office—D. Blake Battles, formerly body-designer and head of the art department of the Peerless Motor Car Company, Cleveland, O., has resigned and has opened an office at 408 Park building in that city, where he is doing automobile advertising and designing.

Out for Good Roads—The Jeffersonville, Ind., Automobile Association has changed its name to the Clark County Good Roads Association and the organization will devote its energies toward road improvement, the prosecution of those damaging the road, interfering with automobiles, etc.

Los Angeles Thomas Branch—The increased demand for automobiles in California has been so conclusively shown by the rapidly growing interest in the Thomas car that the E. R. Thomas Motor Car Company, Buffalo, N. Y., has established a factory branch in Los Angeles, Cal.

Haynes Resigns from Franklin—Frederick J. Haynes has announced his resignation as factory manager of the H. H. Franklin Manufacturing Company, to take effect June 15, 1912. He has an important post with Dodge Brothers, Detroit, Mich., manufacturers of automobile parts.

Indiana Dealers' Association Organized—The Indiana Automobile Association was organized at a meeting of dealers held recently in the rooms of the Hoosier Motor Club in the Claypool Hotel, Indianapolis, Ind. The officers elected are as follows: M. J. Johnson, president; Dale Ogden, secretary, and Roy Privett, treasurer.

Detroit Dog-Catching Truck—Detroit's municipal equipment will include a motor wagon to make hurry-up calls to pick up mad and injured dogs, and the police department has placed an order with the General Motors Truck Company for such a vehicle. The body, which will be mounted on a $1\frac{1}{4}$ -ton chassis, will be equipped with six compartments, having space for 15 cages.

Foreign Tires in Montreal—The Motor Tire Import Company, Montreal, Que., is a newcomer in trade. It handles the G & J, Continental and Jenaskty.

Read Company Aubeuf Agent—T. A. Read & Company, Syracuse, N. Y., are handling the complete line of Aubeuf devices, also the four-wheeled jack and Sterling tires.

Tire Core Company's Product—The Tire Core Company of America, a new concern, has opened offices on the second floor of 246 West Fifty-ninth street, New York City.

Saskatchewan Automobile House—S. A. Schnieder and J. H. Thiemann are opening an automobile business in Humboldt, Sask., to be known as the Imperial Automobile Company.

Hagstrom Plugs in St. Louis—The Wesco Supply Company, St. Louis, Mo., has made arrangements whereby it will act as distributor of Hagstrom spark-plugs and other specialties in St. Louis.

Elastic Rim for Solid Tires—E. D. Bangs, Milwaukee, Wis., has perfected an elastic rim for holding solid tires on automobile wheels. Mr. Bangs is organizing a stock company to manufacture the device.

Flanders Electric Opens Branch—The Flanders Colonial Electric is now represented in Boston, Mass., by a branch with V. C. Kraemer in charge. Temporary salesrooms have been secured at 883 Boylston street.

Dissolution of Partnership—The partnership heretofore existing between Lenus Swan and George Schott, under the name of the Union Garage, Warren, Pa., has been dissolved. Mr. Schott will continue the business.

Puncture-Proof Has New Quarters—The Puncture-Proof Company, maker of a liquid with rubber sealing qualities, has moved into its new home, 209 East Broadway, Louisville, Ky., where the factory and office will be maintained.

Form Vulcanizing Company—The Kalamazoo Vulcanizing Company, Kalamazoo, Mich., has been formed by Hernab Triestram and Clare Burleigh. The firm will take care of all kinds of tire work and a full line of tires and accessories will be carried.

Converting Cars Into Trucks—C. Arthur Benjamin, Inc., Syracuse, N. Y., agent for Packard cars and trucks of all types, converts second-hand Packard pleasure cars into trucks, and a number of these machines are now doing duty in the city and vicinity.

Moore Succeeds Knepper—J. O. Moore, formerly assistant manager of the Warner Speedometer Company's Boston, Mass., branch has been appointed manager to succeed Harry

Knepper, who has gone to the factory at Detroit as sales manager of the company.

R. F. D. Men Use Cars—On the ten rural routes out of Eaton Rapids, Mich., eight mail carriers now own automobiles and the other two have ordered machines. They make the rounds in from 2 to 3 hours whereas formerly it required nearly a whole day.

Cleary Resigns from Inquirer—John A. Cleary, automobile and yachting editor of the Philadelphia *Inquirer* for the past 5 years, has resigned from that paper to become manager of the automobile advertising and news department of the *Evening Telegraph*, of the same city.

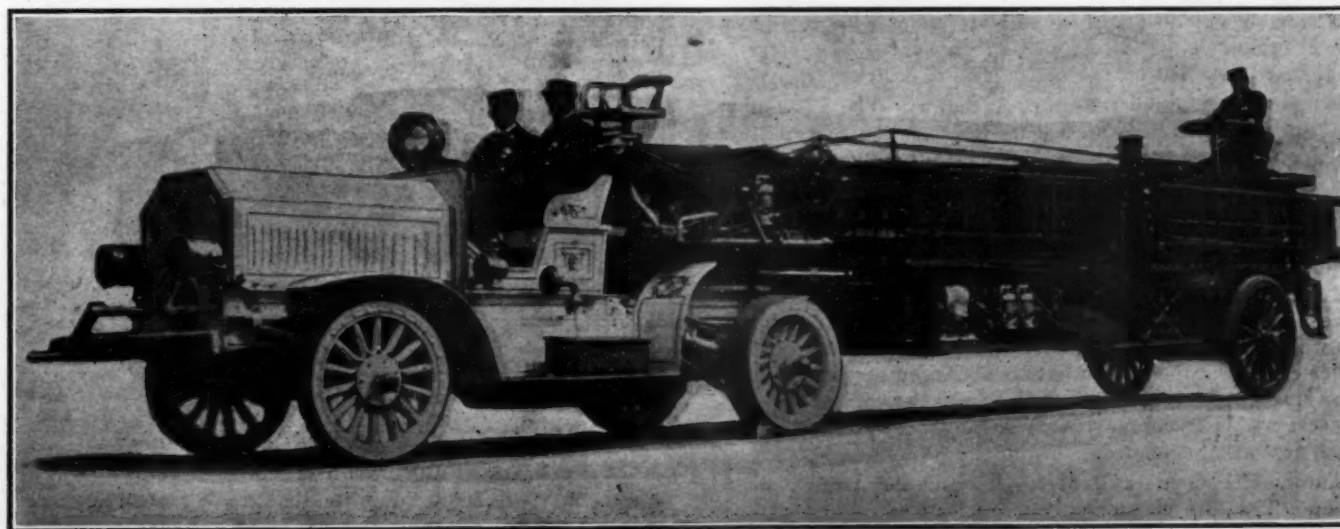
Warning to Joy Riders—As a warning to "joy riders" who steal automobiles for an evening's ride and then abandon the machines, Judge James A. Collins of the Indianapolis, Ind., police court has sentenced Andrew Knight and Arthur W. Keltner to the workhouse for 6 months for petit larceny.

Milwaukee Engineering Society Plans—The Engineering Society of Milwaukee has decided to hold the next middle western electrical show at the Auditorium in Milwaukee, Wis., during the third week of February, 1913. The exposition will be representative of the entire middle western electrical manufacturing field and the automobile appliance and accessory industry will be made a feature.

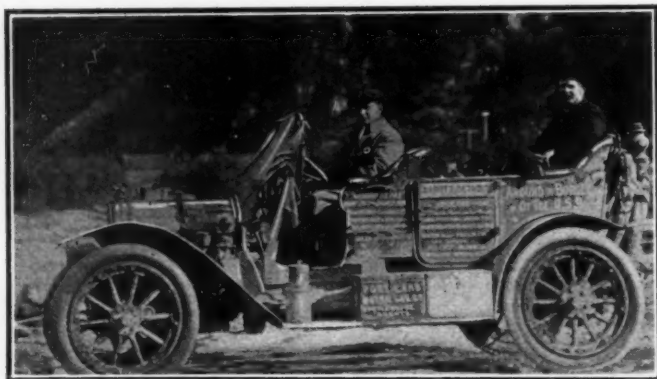
Company May Enjoin City—It is said that if the city purchases the three motor buses recommended by the Board of Control at a cost of \$10,000 each, and puts them into commission, the Toronto railway will probably attempt to get out an injunction. The company claims a general franchise to the streets and says that the city has not the legal right to enter into competition in running a passenger service.

New Automobile Building in Indianapolis—The Globe Realty Company has let contracts for an addition to Automobile Row in North Capitol avenue, Indianapolis, Ind. This will be between Vermont street and the building of the Fisher-Gibson Company and it will be necessary to remove the Prest-O-Lite and Speedway offices and the building occupied by the Warner Electric Company. It will be 3 stories high.

Tacoma Has Automobile Fire-Wagon—The fire department of Tacoma, Wash., has been increased during the past year by a 90-horsepower chassis for the pneumatic truck used at the central station. It is capable of a speed of 55 miles an hour. Tacoma has eight pieces of automobile fire apparatus, consisting of an 80-horsepower chemical engine, three combination hose-wagons and chemical engines, one hose-wagon, the pneumatic truck and two runabouts for the chiefs.



90-horsepower, six-wheeled, pneumatic extension ladder truck in use by the Tacoma, Wash., Fire Department



Abbott-Detroit Bull Dog on White Pass Trail, Alaska

Goodrich Montreal Branch—The Automobile Tire Company, Ltd., handling the Goodrich product, has opened up a Montreal depot at 594-596 St. Catherine street, Montreal, Can.

Pope Hartford's Montreal Salesroom—The Pope Hartford Motor Company of Canada has taken possession of its new salesroom and service office on University street, Montreal, Que.

Goodrich Branch in Ottawa—The Automobile Tire Company, Canadian selling agents for Goodrich tires, has opened a branch in Ottawa, Can., under the management of L. C. Benson.

Wood New Midland Manager—Frank Wood, superintendent of the Midland Motor Company, East Moline, Ill., has been made manager of the plant, succeeding J. M. Dale. Mr. Wood came to the Midland company as temporary superintendent shortly after the organization was taken over by the Deere interests.

Deprived of Licenses—Sixteen operators of motor vehicles were deprived of their licenses recently by the Massachusetts Highway Commission as the result of various infractions of the law. The punishments range all the way from absolute revocation of licenses to suspension for 2 weeks. Four licenses have been revoked.

Bull-Dog Reaches Farthest North—The Abbott-Detroit Bull-Dog, which is making a 100,000-mile endurance run, has already covered over 52,000 miles. Its latest feat was going from central Mexico north along the Atlantic coast of the United States into Canada and through the Saskatchewan district into the Klondike and Yukon regions of Alaska.

Minnesota Chauffeurs After Unscrupulous—The Minnesota Chauffeurs' Association has begun a crusade against the illegal use of cars by unscrupulous chauffeurs. Each owner will receive a blank on which to state under what conditions the chauffeur is permitted use of the car. The returned blanks will be filled by the secretary for future reference.

Proposed Columbus Motor Speedway—The Columbus, O., Automobile Club is discussing the question of constructing a motor speedway to be located at the Buckeye capital and to be modeled after the speedway at Indianapolis, Ind. The matter of constructing a broad track is also being considered and plans and specifications for the board track are being prepared.

Toledo Ladies Enterprising—The women of Toledo, O., have a Woman's building which has many unfilled needs in the way of furnishing and fittings. Money is lacking, and the ladies conceived the idea of having an Automobile Day, when, for a small sum, citizens will be driven to the various points of interest and picturesque beauty in and about Toledo. The machines will be loaned.

Automobile Owners Protest—Automobile owners in El Campo, Tex., are considerably worked up over an ordinance passed by the city council and now pending that limits the speed of machines through the business district to 6 miles

an hour. A law that the owners think within all reason is also being drawn up and will be presented to the board of aldermen as a substitute for the one pending.

Richardson Resigns from Reliance—C. S. Richardson, who has been identified with the automobile industry of San Francisco since 1906 as secretary and manager of the Reliance Automobile Company, has resigned and sold out his interests. He will hereafter be interested in the Punctureless Tire Company, having houses in San Francisco and Los Angeles.

Moline's Good Roads Activities—Merchants of Moline, Ill., and farmers of the surrounding territory have raised \$3,240 to build a road some 20 miles long into Rural township and to open up a rich farming district with inadequate railway facilities. The improvements will cost \$7,000. The new road has long been agitated by automobile owners and the increase in number of machines among both townspeople and farmers made the demand so great that the improvement received financial support.

Another Ocean-to-Ocean Tour—Another Ocean-to-Ocean tour will be started in a few weeks by A. G. Faulkner, sales manager of the Los Angeles, Cal., branch of the Pierce Arrow, and Dr. S. S. Crow of that city. The trip recently completed by the *Examiner*-Case car consumed 41 days and was necessarily slow, so as to make all measurements carefully. The trip to be taken by Messrs. Falukner and Crow will be to advise automobilists as to the best season of the year to make such a trip and the length of time required, as well as regards the equipment to be carried.

Automobile Incorporations

AUTOMOBILES AND PARTS

AMESBURY, MASS.—Hassett & Rogers, Inc.; capital, \$18,000; to manufacture automobile bodies. Incorporators: James H. Hassett, Charles H. Prescott, George E. Collins.

BROOKLYN, N. Y.—East New York Company; capital, \$5,000; to conduct a taxicab business. Incorporators: Jacob Rauch, Frances Rauch, Dan Barnett.

BROOKLYN, N. Y.—Remson Automobile Company; capital, \$45,000; to manufacture automobile motors. Incorporators: Andrew F. Wilson, Wm. H. Kouwenhorn, Albert J. Atchison.

BUFFALO, N. Y.—Pierce-Arrow California Sales Company; capital, \$100,000; to sell automobiles. Incorporators: W. J. Minehan, H. W. Huntington, L. F. Gilbert.

CINCINNATI, O.—Ohio Motor Car Sales Company; capital, \$100,000; to manufacture and deal in automobiles. Incorporators: C. F. Pratt, A. E. Schafer, H. T. Boulden, J. E. Brady, S. C. Roettinger.

CLEVELAND, O.—Eiseman Automobile Company; capital, \$10,000; to sell automobiles and parts. Incorporators: Sidney N. Weitz, John W. Camp, Harry Pott, H. C. Cummings, Alvin Boehmer.

PHILADELPHIA.—Merchants Motor Service Corporation; capital, \$100,000; to construct, lease, hire pleasure and commercial automobiles. Incorporators: George B. Teaz, George W. O'Day, Nathan W. Buzby.

LOUISVILLE, Ky.—Commercial Motors Company; capital, \$10,000; to buy, sell and rent automobiles. Incorporators: Harry B. Fitch, R. J. Hurt, R. E. Scharf.

MORRISTOWN, N. Y.—Spencer-Wilkie Motor Car Company; capital, \$30,000; to engage in a general automobile business. Incorporators: C. P. Spencer, E. A. Carpenter, Wm. W. Wilkie.

NEW YORK CITY.—Kipp Auto Company; capital, \$500; to manufacture motors. Incorporators: Frank W. Kipp, Amanda J. Kipp, Harman Neucratz.

NEW YORK CITY.—Mercedes Selling Branch Company; capital, \$5,000; to engage in the automobile business. Incorporators: Jacques L. Woldenburg, Edmond R. Lyon, Jacob Kooperstein.

NEW YORK CITY.—Berson Reciprocity Motor Company; capital, \$100,000; to manufacture automobile engines and parts. Incorporators: Chas. O. Pearson, Charles L. Herrington, James A. McCarren.

NEW YORK CITY.—Yellow Taxicab Company; capital, \$5,000,000; to operate taxicabs. Incorporators: Albert F. Rockwell, Robert C. Watson, Wm. M. Lybrand.

NEW YORK CITY.—Beckwith Trucking Company; capital, \$10,000; to deal in automobiles and supplies. Incorporators: Jay Beckwith, H. Allen Wagner, Grace E. Beckwith.

PITTSBURGH, PA.—Pitt Motor Truck Company; capital, \$200,000; to manufacture commercial vehicles. Incorporators: J. E. Douglas, W. S. Phillips, F. O. Brandt, J. E. McCalmont.

PORTLAND, ME.—Forest City Automobile Company; capital, \$10,000; to manufacture and deal in automobiles. Incorporators: J. A. Clarke, W. B. Clarke.

WILMINGTON, DEL.—Everitt Motor Car Company; capital, \$3,000,000; to manufacture automobiles. Incorporators: Byron F. Everitt.

GARAGES AND ACCESSORIES

ALBANY, N. Y.—Boulevard Garage Company; capital, \$50,000; to conduct a garage, deal in supplies and accessories. Incorporators: Morris L. Ryder, Samuel W. Whitney, Horace A. Raynor, Oscar F. Kinney, Horace S. Bell, Thomas R. Ward, Jr., Leonard G. Staley, Frederick E. Wadham, William F. Mackett.

News of the Garages

DeMille is Building Garage—V. DeMille is building a \$30,000 two-story garage at Calgary, Alberta, on Eleventh avenue.

Coraopolis Garage Company Enlarges—The Coraopolis Garage Company, Coraopolis, Pa., has decided to enlarge the present building.

East End Garage Increases Space—The East End Garage building at Thirteenth and Walnut streets, Harrisburg, Pa., has been enlarged.

Modern Automobile Garage—Lisbon, O., will have a modern automobile garage on East Walnut street. B. L. Hollinger is in charge.

New Maxwell Garage—N. V. & H. N. Porter, New London, Conn., agents for the Maxwell, have opened a new garage at 416 Bank street.

Quinn Building Garage—Ground has been broken for a garage to be built by James H. Quinn, proprietor of the Massasoit hotel, Spencer, Mass.

Lay Foundation for Garage—A. E. Hawn has commenced laying the foundation for the garage building that Davis & Stolt of Corsica, S. D., will erect.

McKenzie Erects New Building—J. J. McKenzie is erecting a brick building with a frontage of 40 feet to be used as a garage in Edmonton, Alberta.

New Garage Going Up—L. R. Wallace's new garage, Mt. Victory, O., is now under construction. It is to be a cement block building of good proportions.

Hanover Garage Opened by Collins—Robert Collins has opened a general repair shop, storage and machine shop at 210 West Hanover street, Trenton, N. J.

Garage to Cost \$24,000—Work will commence at once on the erection of a garage to cost \$24,000, which is being put up for Edinger Company of Strathcona, Alberta.

Wellington & Webster Lease Shop—Wellington & Webster have leased the Coburn shop at East Jaffrey, N. H., and have turned it into a garage and repair shop.

Jordan Leases Spinney Garage—The Spinney garage at Farmington, Me., has been leased by Fred D. Jordan and it is now open for business under his personal direction.

Rubber Company Builds Garage—The Canadian Consolidated Rubber Company, Limited, has built a large private garage in connection with their factory and warehouse at Montreal.

Building Nearly Finished—The new garage on Norwood avenue, near Broadway, Long Branch, N. J., called the Norwood Garage, being built by George R. Parker, is almost completed.

Owen Sound Garage Leased—The new garage being built by the Kilborn Company, Owen Sound, D. C., on the bank of the river at Ninth street, has been leased by the Owen Sound Pressed Steel Company.

Doherty Purchases Garage—F. H. Doherty, of Orangeville, D. C., has purchased a block on Broadway and intends opening a garage to accommodate the local and tourist trade. He will handle the Reo and Ford cars.

Buys Out Employers—R. C. Hathorn, for some years employed by H. A. Perkins & Company, who conducted a large garage in White River Junction, Vt., has purchased the business and will conduct it in the future.

Dunkee Opens for Business—A garage, said to be the largest and most complete in Southern New Hampshire, has been opened in Concord, by Norris A. Dunkee, a veteran stable keeper, who has given up his horse livery business.

Keene & Kimball Build Addition—Keene & Kimball, proprietors of the garage on Burleigh street, Waterville, Me., are having an addition built to the present quarters in which a machine shop and nickel-plating plant are being installed.

Hill-Murchie Enlarging—The business of the Hill-Murchie Garage Company, Somerville, Mass., has outgrown the present quarters and an addition 50 feet wide and of the depth of the present building is being erected. It is of brick and concrete.

Toledo Garage Issues Guide—The United Garage, Toledo, O., has issued an interesting guide showing several newly completed roads of northern Ohio and giving the best routes out of Toledo to distant points. A number of shorter routes and week-end journeys for pleasure jaunts are also given.

To Increase Facilities—Frank Powell, proprietor of the Windham garage in the rear of Young's hotel, Willimantic, Conn., has leased the brick barn adjoining from S. J. Young, who is having the structure altered to make an addition to the garage. An elevator is being installed to carry cars to the upper floor.

Bentley to Have New Building—B. Court Bentley, proprietor of the garage on Main street, Westerly, R. I., is to erect a new building on the site of the old structure which was partly destroyed by fire some time ago. The new building will be 30 by 100 feet with an addition in the rear 20 by 40 which will be used as a machine shop.

Automobile Incorporations

BOWLING GREEN, O.—Star Machinery & Garage Company; capital, \$50,000; to operate a general machine shop and do a garage business. Incorporators: E. J. McKnight, J. L. Smith, Milton F. Dilts, Ida Mary McKnight, A. N. McKnight.

BROOKLYN, N. Y.—Broadway Penn Garage Company; capital, \$2,000; to engage in the automobile repair and garage business. Herman Goldstein, Meyer Kaplan, Hyman Meisel.

BROOKLYN, N. Y.—Ulmer Park Machine Works, Inc.; capital, \$5,000; to conduct a general machine shop and do automobile repairs. Incorporators: Carl W. Lawson, Frederick W. Breiwitz, Alfred Johnston.

CINCINNATI, O.—Eddy Automobile Company; capital, \$5,000; to operate a garage and sell automobiles of all descriptions. Incorporators: Horace T. Eddy, Fred A. Wagner, A. C. Shattuck, A. C. Shattuck, Jr., D. K. Cox.

CLEVELAND, O.—Guide Motor Lamp Company; capital, \$100,000; to manufacture and sell automobile lamps and other fixtures for motor car use. Incorporators: Hugh J. Menon, W. F. Persons, William H. Bunce, John D. Kauffmann, W. Louis Rose.

DAYTON, O.—Apple Electric Company; capital, \$300,000; to manufacture electrical ignition, starting and lighting devices for automobiles. Incorporators: V. G. Apple, Oscar Apple, J. C. Slager, Clarence Keifer, Carl Baumann.

GARY, IND.—Garage De Luxe Company; capital, \$5,000; to conduct a garage and engage in the automobile business. Incorporators: W. R. Sharp, Lawrence Sharp, Roy Jaber.

HEKIMER, N. Y.—Kowalko Garage Company; capital, \$4,000; to engage in the automobile business and operate a garage. Incorporators: William E. Braus, Jr., William J. Wallrad, Gorham Smith.

HUNTINGTON, N. Y.—Bergen Garage, Inc.; capital, \$5,000; to conduct a garage and buy and sell automobiles, supplies and accessories. Incorporators: A. Schenck Bergen, Howard F. Doughty, John H. Doughty.

INDIANAPOLIS, IND.—Automobile Resilient Tire Company; capital, \$10,000; to manufacture automobile tire fillers. Incorporators: Jacob Moffatt, W. H. Disher, A. G. Balfour.

MILWAUKEE, WIS.—Milwaukee Rubber Works; capital, \$25,000; to manufacture automobile tires and rubber goods. Incorporators: W. L. Stewart, B. A. Boll.

NEW YORK CITY—Gas Engine Self-Starting Company; capital, \$1,000; to manufacture automobile starting apparatus. Incorporators: George M. Auten, Harry C. Farnum, Lemuel C. Altemus.

NEW YORK CITY—Parker Garage Company; capital, \$3,000; to deal in automobiles and operate a garage. Incorporators: Charles T. Green, Edwin B. Griffin, Ernest M. Morrison.

NEW YORK CITY—Resilio Tire Company; capital, \$100,000; to manufacture automobile tires and rubber goods. Incorporators: Edgar T. Wallace, T. S. Williamson, L. H. Starkey.

NEW YORK CITY—Service Recorder Company of New York; capital, \$10,000; to manufacture time recorders and speedometers. Incorporators: Harold F. Seymour, Benjamin N. Levy.

OGDENSBURG, N. Y.—Cresson Garage Company; capital, \$6,000; to engage in the garage and automobile repair business. Incorporators: John O. Spear, Charles W. Wood, William Golden.

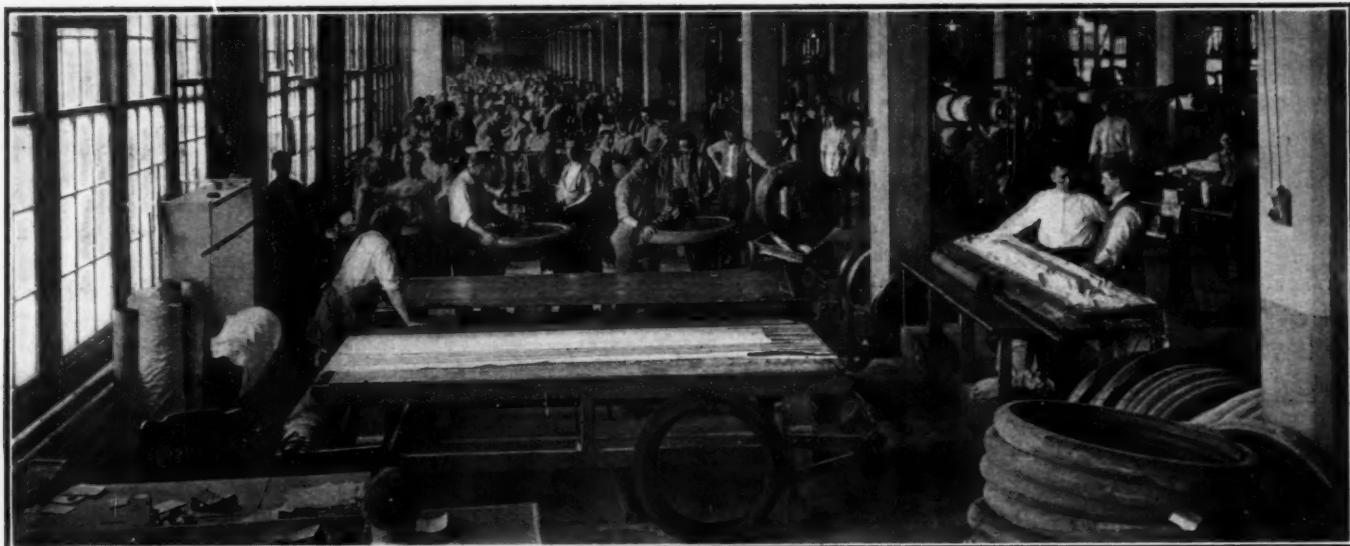
WELLAND, ONT.—Canadian Cataract Rubber Company; capital, \$200,000; to manufacture rubber tires and other rubber goods. Incorporators: E. J. M. Block, J. Dilcher, L. B. Spencer, L. C. Raymon, M. A. Overholt.

CHANGES OF CAPITAL

AKRON, O.—B. F. Goodrich Company; reduction from \$20,000,000 to \$200,000.

PLANO, ILL.—Mogul Motor Truck Company; increase from \$125,000 to \$500,000.

Factory Miscellany



Finishing department of the automobile tire section of the Goodyear Tire & Rubber Company at Akron, Ohio

GOODYEAR Breaks Production Record—The Goodyear Tire & Rubber Company, Akron, O., recently broke its own and the world's record for the number of tires manufactured in one day. The accompanying illustration shows the finishing side of the automobile tire room at the company's plant.

Buffalo Company's Addition—The Buffalo Gasoline Motor Company, Buffalo, N. Y., has filed plans for an extensive addition to its plant at Niagara street. It will cost \$40,000.

Moyer Company Working Overtime—The Moyer Company, Syracuse, N. Y., maker of the Moyer car, is working an extra shift of men in the evenings to keep pace with orders.

Sandusky Force Doubled—The plant of the Sandusky Automobile Parts and Motor Truck Company, Sandusky, O., is to be doubled, and by next November at least 250 men will be employed.

Radiator Company Grows—The Fedders Company, Buffalo, N. Y., manufacturer of radiators for automobiles, has commenced the construction of an addition to its power plant at Tonawanda street and West avenue.

Croxton's Plans for Factory—Architect H. O. Davidson, Cleveland, O., has new plans in progress for a steel frame and concrete automobile factory to be constructed for the Croxton Motor Company, Washington, D. C. The building will cost \$75,000.

Universal Locates in Iowa—The Universal Motor Truck Company has located its plant at Newton, Ia., and 25 trucks will be ready for the market not later than July 1. Both the truck and the street car plants will be erected and operated at Newton.

Contract for Davies Plant—The contract for building a plant for the Davies Manufacturing Company, Alliance, O., was placed in the hands of the McClintic-Marshall Construction Company of Pittsburgh, Pa. Automobile supplies will be manufactured.

Bergdoll Buys at Trenton—The Bergdoll Machine Company, Philadelphia, has purchased a large building at Trenton, N. J., where its motor-making department will be installed. It is reported that the company will eventually remove its entire plant to Trenton.

Machinery at Penn Plant—The Penn Motor Company, New Castle, Pa., expects to begin operations within 2 weeks, and cars will be turned out at the rate of fifteen a day. Two carloads of machinery arrived recently, and it is expected to be set up and ready for operations early in June.

Cadillac Will Not Move—The Chamber of Commerce of Defiance, O., is in receipt of a letter from the Wabash district freight agent to the effect that he visited the Cadillac factory at Detroit recently and that the Cadillac company had decided not to make any change of location.

Dunkirk Gains Industry—The Dunkirk, N. Y., board of trade has arranged to have the Motor & Manufacturing Company, now located at Geneva, N. Y., remove to Dunkirk. The company manufactures patent mufflers for automobiles and marine engines. It expects to get in operation here about June 15.

U. S. Rubber Plans Plant—President Colt, of the U. S. Rubber Company, said recently that the new rubber tire plant, the construction of which he had advised at the annual meeting of the stockholders as an imperative need of the company, would probably cost between \$3,000,000 and \$5,000,000.

Greenville to Make Automobiles—The work of remodeling the old Shelby Steel Tube Company's plant at Greenville, Pa., which was started some time ago by the Greenville Metal Products Company, has been completed. The purpose of these improvements is to put the plant in shape for manufacturing automobiles, the Greenville Metal Products Company having secured some time ago a contract from the Empire Automobile Company, for manufacturing 5,000 completely equipped cars.

Wants Transportation Facilities—The Ideal Motor Car Company, of Detroit, Mich., capital \$300,000, is looking for a factory location where transportation facilities are good.

Contract for Akron Plant—Contracts have been awarded for a two-story brick and steel factory and office building in Akron, O., for the Akron Rubber Machine & Mould Company.

To Make Car in St. Johns—It is proposed to establish an automobile manufacturing plant at St. Johns, N. B., this summer. Probably 500 hands will be employed. The car to be turned out is one of the best known in America.

Proposes to Build Truck Plant—J. C. Coleridge proposes to establish a motor truck manufacturing plant at Ingersoll, Ont. The company intends to build on 3 acres of land and to install \$20,000 worth of equipment inside of a year.

Contemplate Moving Plants—It is reported that the Clark Motor Company and the Lewis Spring & Axle Company, two of the largest industries of Jackson, Mich., are contemplating moving their plants to Detroit. The two concerns employ 800 men.

Truck Factory for Akron—The Ideal Commercial Company is building a large plant in Akron, O., at South and Railroad streets and will soon commence the manufacture of Ideal cars. This company was formerly located at Detroit, Mich.

Goodyear Adds Building—The Goodyear Tire & Rubber Company, Akron, O., has completed plans for another large building to be built in connection with the present group. It will be 400 feet long and 79 feet wide. Building No. 13 is to be remodeled and an additional two stories will be added. This building at present is 296 feet long and 79 feet wide.

Mais Company to Enlarge—In anticipation of largely increasing its output during the 1913 season, the Mais Motor Truck Company, Indianapolis, Ind., has begun the erection of a factory addition to contain 20,000 square feet of space. For the 1913 season the company announces it will add several new models, so that its line will range from 1 to 4 tons capacity.

Express Companies Like Trucks—The express companies of the country are fast replacing horse-drawn vehicles with motor-driven wagons of both the gasoline and electric type. The Baker Motor Vehicle Company, Cleveland, O., recently received a repeat order from the American Express Company for twenty-eight more 2-ton trucks for use in Washington, Baltimore, New York and Chicago.

Wolverine Truck on the Market—Pratt, Carter, Sigsbee & Company, Detroit, Mich., will establish a large plant in the near future for the manufacture of a truck to be known as the Wolverine. The truck is a single-cylinder affair with a capacity of 800 pounds. The company has been experimenting with it for the past 2 years and has sent it on many long runs, including one to Cleveland.

Minneapolis May Have Plant—The Ware Motor Vehicle Company, maker of the four-wheel drive delivery, is negotiating with H. J. Tremsin, of the Minneapolis Commercial Club, Minneapolis, Minn., for erection of a plant in Minneapolis to make its cars. It has a temporary plant at 771 Raymond avenue, Midway. L. E. Roberts is president of the company and J. L. Ware is manager.

May Make Cole Junior—Recent additions to its engineering department and the erection of two large additions to its factory have led to rumors that the Cole Motor Car Company, Indianapolis, Ind., will place a new medium-priced model on the market at the beginning of the 1913 season. The report is that the new car will be known as the Cole Junior and will sell at from \$1,200 to \$1,500.

Abbott to Add to Plant—In order to provide for a 25 per cent. increase in its output of automobiles during the coming

New Automobile Agencies

PLEASURE CARS

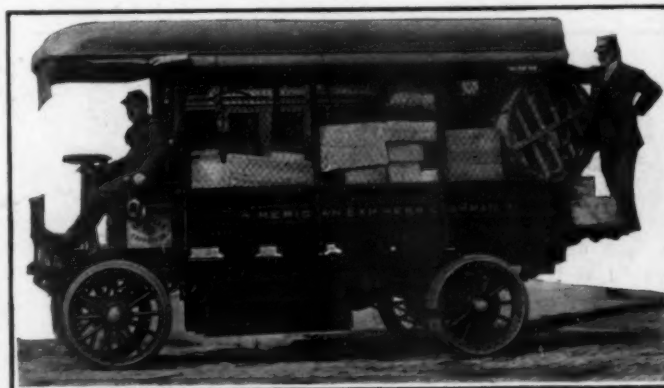
Place	Car	Agent
Babylon, N. Y.	Cole	George Haab.
Bayshore, N. Y.	Cole	Bayshore Auto Co.
Birmingham, Ala.	Cole	Northern's Auto. Agency.
Boulder, Col.	Cole	William Armstead.
Bridgehampton, N. Y.	Cole	Charles Roberts.
Centre Moriches, N. Y.	Cole	S. S. Roberts.
Cleveland, Ohio	King	Bingham Motor Car Co.
Clovis, N. M.	Cole	D. B. Oldham.
Coram, N. Y.	Cole	Lester H. Davis.
Davenport, Iowa	Michigan	Steinhauer & Hiaton.
Good Ground, N. Y.	Cole	C. S. Vail.
Houston, Tex.	King	Holland S. Reavis.
Huntington, Ind.	Cole	Jon H. Miller.
Huntington, N. Y.	Cole	Suffolk Electric Co.
Indianapolis, Ind.	Packard	Carl G. Fisher & Co.
Johnstown, Pa.	Cole	Park Auto Co.
Lindenhurst, N. Y.	Cole	A. Warta & Brother.
Long Island City, N. Y.	Cole	Seymour Taft.
Milwaukee, Wis.	Enger	A. O. Schrader.
Moro, Ore.	Cole	W. H. Moore.
Northport, N. Y.	Cole	Northport Lumber & Coal Co.
Patchogue, N. Y.	Cole	Bellman Auto Co.
Peconic, N. Y.	Cole	Nathan Sayre.
Peoria, Ill.	Cole	C. W. Robinson & Co.
Philadelphia, Pa.	Cole	Henry A. Rowan, Jr., Auto Co.
Port Jefferson, N. Y.	Cole	A. N. Randell.
Richmond Hill, N. Y.	Cole	J. T. Kernocken.
Rockville Center, N. Y.	Cole	Gardner's Garage.
Rutland, Vt.	Cole	Rutland Garage Co.
Smithtown, N. Y.	Cole	Smithtown Auto Co.
Smithtown Branch, N. Y.	Cole	H. B. Arthur.
South Jamesport, N. Y.	Cole	J. Edwards.
Strathcona, Alberta	Cole	H. A. Calder.
Syracuse, N. Y.	Baker Electric	W. R. Pierce.
Vassar, Mich.	Cole	B. H. Clark.
Wabash, Ind.	Cole	James T. Watson.
Waco, Tex.	Cole	Chapman Tire & Rubber Co.
Warren, Pa.	Ford	W. O. Wilson.
Washington, D. C.	Cole	C. R. Cowie & Co.
Westhampton, N. Y.	Cole	D. H. Losee.
Westport, Conn.	Cole	Westport Garage.
Wichita Falls, Tex.	Cole	Abe Marcus.
Wilkes-Barre, Pa.	Krit	Wm. S. Lee.
York, Pa.	Hupmobile	T. F. Pfeiffer.

COMMERCIAL VEHICLES

Columbus, Ohio	Blair Truck	Adamson Automobile Co.
York, Pa.	Baker Electric	Auto & Truck Sales Co.

year, the Abbott Motor Company, Detroit, Mich., has purchased a large plot of land along Beaufait avenue, on the north of the present factory. Plans are under way for the erection of permanent buildings to occupy the newly acquired property and actual construction will begin within the course of a few weeks.

Klaxon Makers Increase Capacity—The Lovell-McConnell Manufacturing Company, Newark, N. J., is making extensive additions to its manufacturing facilities. The power plant is being enlarged to more than double its present capacity, additional land has been purchased to admit of further expansion in other departments and new machinery has been installed. The present Klaxon factory was completed less than 2 years ago and was designed to accommodate a large increase in the capacity necessary at the time of its construction but the present maximum producing facilities are inadequate.



Type of Baker electric truck much used by big express companies

Newest Ideas *among the* Accessories

Substitute for Air in Tires; Electric Signal Bell; Aplco Demonstration; Oil Gauge for Ford Cars; Self-Starter Plug; Lasting Leather Dye; Concrete Bumper; Car Lock; Safety Crank

Dahl Punctureless Tire Filler

THE Dahl punctureless tire, Fig. 1, is a filler which comes in several parts having the shape of inflated inner-tube sections. The filler material is an organic compound, dark tan colored and very elastic. It melts at about 400 degrees Fahrenheit and burns at a somewhat higher temperature. The substance as supplied by the manufacturer comes in a number of sections which are inserted in the casing.

Before applying the filler material in place of the inner tube the casing must be carefully examined for weak places, and if such are found the casing should be reinforced by means of a reliner. Then the large sections are placed in the casing, and if they do not fill it tightly smaller sections are inserted between them at different points of the circumference until the casing is well inflated with the filler material. Then the casing is replaced on the rim and locked by a locking ring, after which it is ready for use. It is claimed that the Dahl filler does not expand nor burst through the tire, even if subjected to hard service. The manufacturer of this product is the Dahl Punctureless Tire Company, 629 Palace Building, Minneapolis, Minn.

The Liberty Automobile Bell

Though at present almost monopolized by electric cars, the use of bell signals has many points in its favor, and the General Utility Company, Philadelphia, has recognized this fact and brought out the Liberty Bell, Fig. 4. This bell is made of bronze and is operated by a clapper oscillated by the armature of an electro-magnet. The current activating the magnet is supplied by a dry or storage battery, the wires leading thence to a plug P, which is inserted in the socket S at the bottom portion of the core of the magnet. The latter rests upon a base which is bolted to the dash or another suitable place.

Steerease Fabric Wheel Grip

The Goodyear Rubber Hose & Packing Company, 221 Chestnut street, Philadelphia, has recently put on the market a steering wheel grip called Steerease. This is made of a rubberized fabric in the form of a ring, Fig. 3, which is tightly

and permanently fixed to the rim of the steering wheel. In mounting Steerease on the wheel the grip material is cut at one point, and after applying it to the wheel, as much material is cut off as is necessary to obtain a tight fit of the grip on the wheel. If necessary, some material is also cut away where the spokes are attached to the rim. Then the inside of the grip is covered with cement furnished with the covering material, which is pressed onto the rim and bound thereto by means of bandage material also included in the

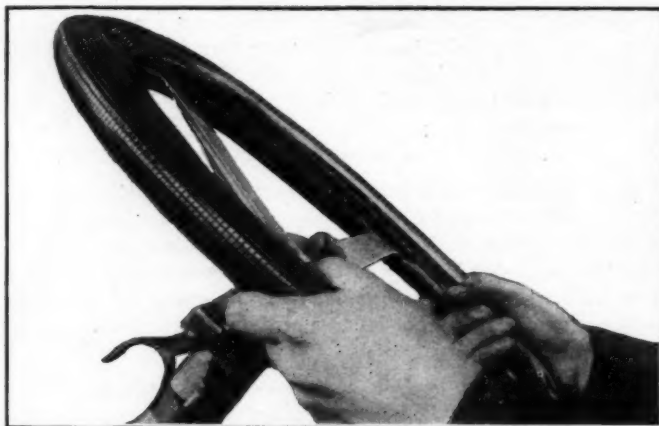


Fig. 3—Steerease automobile steering wheel holder

Steerease outfit. In this state the wheel is left standing over night. In the morning the bandage is removed and the wheel is ready for operation, the cement binding the grip fast to the wooden or hard-rubber rim of the steering wheel.

The Aplco Lighting Generator

As a proof of the argument that the Aplco lighting generator operates at any speed, no matter how slow at which an automobile may travel, the following experiment was made recently with a Model A4 dynamo, Fig. 2. A 2-candlepower, 6-volt lamp was connected to the terminals of the dynamo and the shaft of the machine was rotated at about 150 revolutions per minute by the fingers of an operator. As a result of this the lamp lighted up for a very short time. Later on, to prepare the machine for a repeated demonstration of this type, a small hand-wheel was attached to the shaft, which arrangement is seen in Fig. 2. The lighting generator is made by the Apple Electric Company, Dayton, O.

New Auto-Parts Ford Oil Gauge

An oil gauge for the 1912 Ford car Model T is made by the Auto Parts Company, Providence, R. I. This gauge is of the vertical-tube, sight-feed type and contains a novel feature in an air vent which insures positive action of the gauge. The housing is turned from a solid piece of brass; the glass cylinder is 3-4 inch in diameter and 1-8 inch thick, making the gauge practically unbreakable.

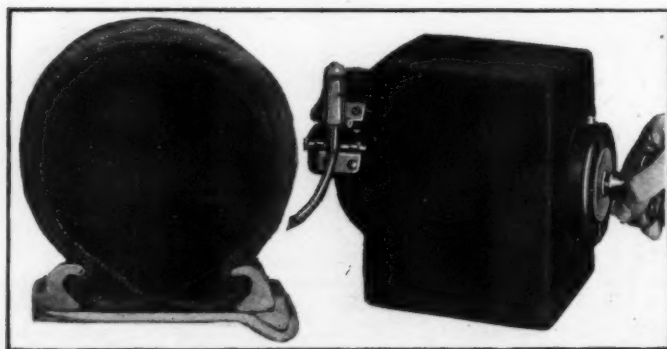


Fig. 1—Dahl punctureless tire. Fig. 2—Demonstrating apparatus for showing low-operating speed of Aplco dynamo

Ignition Starter Spark-Plug

A new spark-plug has been put on the market by the Ignition Starter Company, Detroit, Mich., manufacturers of the Disco self-starter. The new plug is constructed for use in connection with acetylene self-starters on motors which have no priming cups adaptable to the starter leads. The illustration, Fig. 5, shows how the plug combines the offices of a spark-plug and a priming cup. The shell of the plug is bored to form a passageway opening into the cylinder at P and connected by piping at the other end to the distributor valve of the starter. The distributor is shut off from the interior of the cylinder by a ball check, which is opened by the gas flowing under pressure from the starter on the dash to the combustion chamber. In other respects the new plug is of conventional design.

Leather Dyeing Preparation

The Rub-On Varnish Company, Buffalo, N. Y., manufactures the Col-R-ol leather dye which may be used in coloring leather without the application of a primer. The leather dye, it is claimed by the makers, enters the pores and penetrates the leather, which results in a very durable finish. The dye is insoluble in water, and as it penetrates the leather it waterproofs it at the same time. The dye dries within 1-2 hour after application.

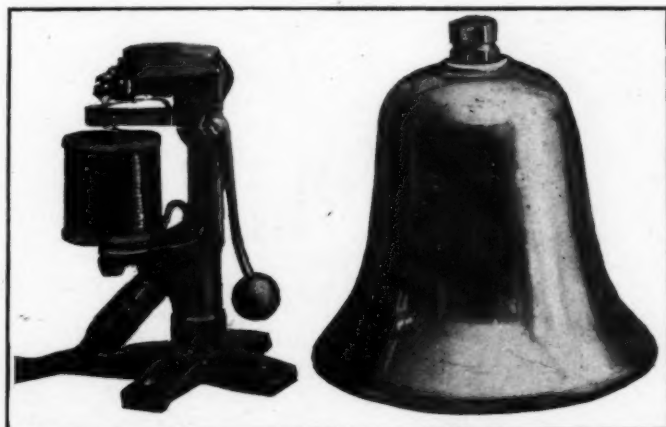


Fig. 4—Liberty electric signal bell and electro-magnetic clapper

Reinforced Concrete Bumper

The Oakford Bumper, made by R. Oakford, 1228 Wagner avenue, Logan, Pa., is constructed of reinforced concrete tubing covered with brass-plated steel. The bumper is of the spring compression type, the springs being laid in each of the two tubes, while the metal bumped bar is also filled with concrete. The bar has two piston bars attached to it which fit into the two concrete tubes and compress the springs in case of a collision. This type of bumper is designed with a view toward principal use on small cars and is furnished by the manufacturer in brass, nickel, oxidized metal and japan finish.

The use of concrete, while novel in the line of automobile parts, seems to be a rather happy innovation, owing to the great rigidity of the material. Concrete itself is very strong and, when reinforced by steel, is practically unbreakable.

Moon Automobile Safety Lock

To prevent theft of the car or its abuse by joy-riders, the Moon Specialty Sales Company, Los Angeles, Cal., has brought out the lock shown in Fig. 5, both on and off the quadrant of the transmission, effecting its purpose when in place by positively holding the gear-shift lever in the neutral position. In applying the lock the two prongs near the lock are laid beneath the quadrant, while the upper prong is so positioned that upon turning the knob K on the threaded shaft carrying the lock the upper prong draws around the gear-shift lever and prevents

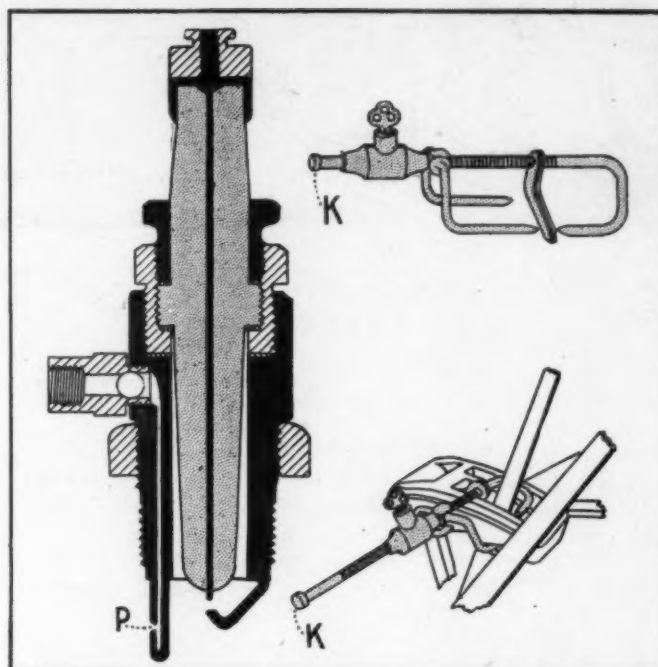


Fig. 5—Ignition starter plug and Moon automobile safety lock

it from being moved. As soon as the prong is in the proper position the key is turned, thereby locking the nut on the worm of the shaft and holding all three prongs in their relative position.

Cukor Safety Starting Crank

The Cukor safety crank, Fig. 6, consists principally of three parts: a sleeve which is splined to the motor crankshaft, a ratchet taking in this sleeve and fastened to the radiator frame and the crank proper. The latter is held in engagement with a slot in the sleeve by means of a pin pressed by a spring against the cam surface of a pawl attachment of the crank, which engages the ratchet when the engine is being cranked. If the engine backfires, the motion of the sleeve is reversed, pawl and ratchet are thrown out of engagement and the spring-urged pin follows the cam surface and disconnects the crank from the starting sleeve. This device is made of chrome-nickel stamped steel by the Commercial Car Sales Company, Newark, N. J.

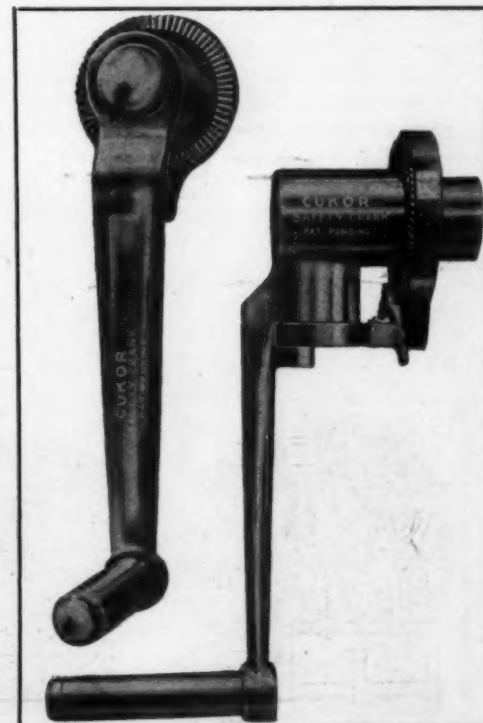


Fig. 6—Cukor pawl-and-ratchet, anti-kick starting crank

Patents Gone to Issue

ENGINE Starter—Consisting mainly of a distributor and check and regulating valves.

This patent refers to a starter mechanism, Fig. 1, comprising a distributor D and passages C for leading a combustible gas to the engine cylinders. The distributor has a number of ducts, each of which communicates with one cylinder and which also communicate among each other by means of passages in which valves M are located; these valves permit of a gas flowing in the direction of the ducts, that is, to the cylinders. The distributor also contains valves V which are subjected to the fluid pressure exerted during the compression strokes of the motor pistons and which are adapted to be thereby operated to open communication between cylinders and passages leading to the source of the explosive mixture used for starting.

No. 1,024,447—to Edward A. Halbleib, Rochester, N. Y., assignor to the Northeast Electric Company, Rochester, N. Y. Granted April 23, 1912; filed September 6, 1910.

Spark Plug—In which a number of electrodes are provided to create a multiple spark.

The spark plug, Fig. 2, described in this patent, has a shell the lower end of which carries prongs P. The insulating plug has a downward extending web forming a partition between the prongs. Electrodes which extend through the plug at opposite sides of the web terminate adjacent the prongs, each electrode being provided with a switch-engaging member S formed at its upper end, which is operated by a switch lever. The latter is connected, by an insulating block, to a resilient supporting member. The switch lever is adapted for alternate engagement with the electrodes.

No. 1,024,321—to William Ellis, Harrod, O. Granted April 23, 1912; filed May 12, 1911.

Demountable Rim—Having transverse and circumferential portions in which wedging keys are inserted.

This patent refers to a demountable rim construction, Fig. 3, comprising a wheel felloe and a band encircling the same, which

has recesses P forming transverse and circumferential portions in its periphery. The rim R has wedge lugs W on its inside surface; these lugs are adapted to enter the circumferential portions of the recesses. Locking keys K of double-wedge form are adapted to be inserted in the transverse portions of the recesses so as to force the lugs tightly into place, at the same time effecting a tight wedging contact between band and rim.

No. 1,024,746—to Harry Hine Replogle, Montreal, Que., Can. Granted April 30, 1912; filed April 22, 1910.

Rubber Tire—In which a metal core is formed by a series of links and transverse bolts.

The solid rubber tire, Fig. 4, referred to in this patent, has a recess bored through it, in which recess an endless articulated band B is laid. The band is formed by a series of links L held together by transverse bolts T. Each bolt is long enough to pass completely through the tire from one side to the other and to extend to the outside of the tire. On each side of the rubber tire oppositely disposed plates P and P₁ are arranged with their adjoining ends unconnected. The bolts are securely attached to the plates to hold them in position.

No. 1,024,042—to Alfred William Torkington, Purley, England. Granted April 23, 1912; filed July 3, 1908.

Engine Control System—Serving for simultaneous regulation of fuel, oil and air supply.

In the internal combustion engine described in this patent an accelerator lever is used to control the carbureter throttle, and a regulator to control the supply of oil from the reservoir to the parts to be lubricated. There is an interconnection between the regulator, the accelerator lever and the throttle, so that, by operating the accelerator lever, the oil supply is also regulated in proportion to the mixture fed to the motor.

No. 1,024,862—to Ernst Moewes, Marienfelde, and Alfred Vischer, Cannstatt, assignors to Daimler Motoren Gesellschaft, Untertuerkheim, Germany. Granted April 30, 1912; filed January 7, 1911.

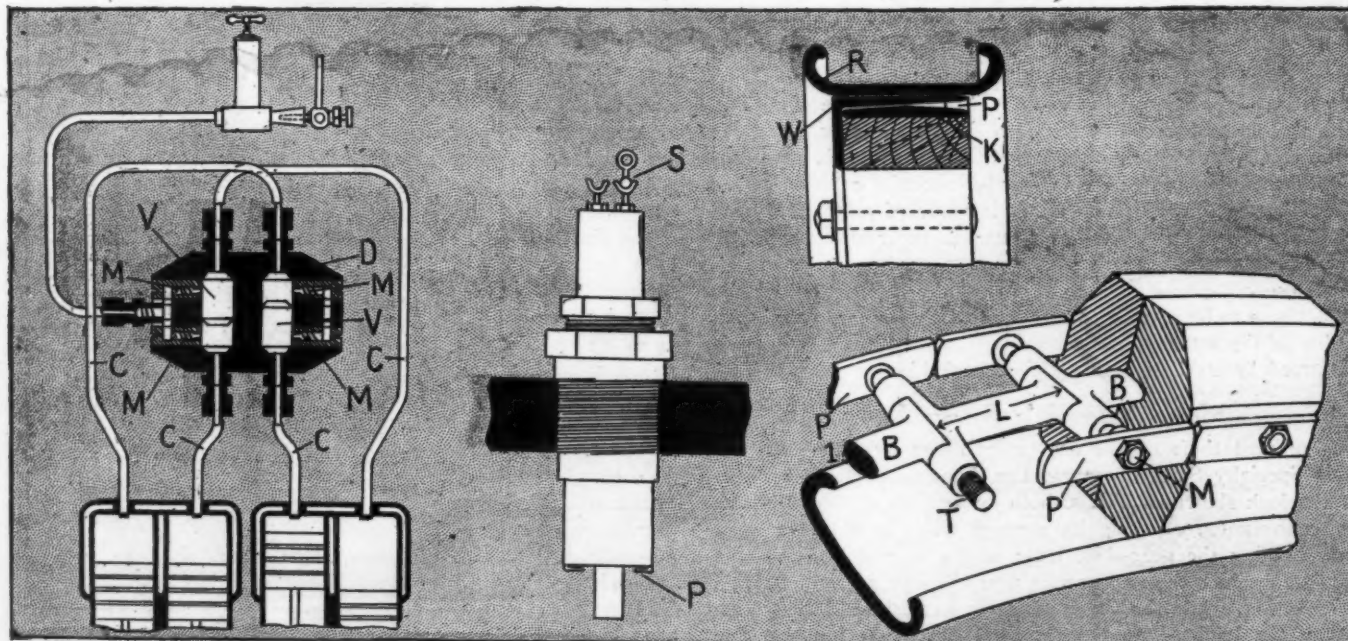


Fig. 1—Halbleib starter. Fig. 2—Ellis multiple spark plug. Fig. 3—Replogle demountable rim. Fig. 4—Torkington solid tire